STABILIZATION TABULATION AND RCRIS RETROFIT

DOCUMENTATION OF STABILIZATION MEASURES FOR 33 FACILITIES

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Solid Waste
Washington, D.C. 20460

Work Assignment No.	:	R06044
EPA Region	:	6
Date Prepared	:	February 14, 1996
Contract No.	:	68-W4-0007
EPA Work Assignment Manager	:	David Vogler
Telephone	:	214/665-7428
Prepared by	:	PRC Environmental Management, Inc.
PRC Project Manager	:	Anthony L. Gardner
Telephone	:	214/754-8765

TABLE 4

STABILIZATION DOCUMENTATION FORM
CA650-STABILIZATION CONSTRUCTION COMPLETED

1. **FACILITY NAME:** Union Carbide

2. **USEPA ID:** TXD008114092

BRIEF EXPLANATION OF ACTIVITY: Clean closure of SWMU Z was accomplished by excavating about 2,545 cubic yards of contaminated soils for offsite disposal. Soil sampling was conducted to confirm complete removal of all contaminated soils before the excavated area was backfilled with clean soil.

DOCUMENTATION LOCATED TO SHOW STABILIZATION "CONSTRUCTION COMPLETED"

According to the information submitted to PRC in a letter dated December 5, 1995, TNRCC acknowledged the clean closure on January 20, 1995.

LOCATION OF DOCUMENTATION: (As applicable) Attached

RECORD OF TELEPHONE COMMUNICATION: Attached

OTHER COMMENTS:

PERSON COMPLETING THIS FORM AND DATE: Abu Senkayi (12/21/95)

PRC ENVIRONMENTAL MANAGEMENT, INC.

RECORD OF TELEPHONE CONVERSATION

Date: 11/22/95 Project Number: 170-R0604401

Name: Senkayi, A. L.

Initiated Call [✓]
Returned Call [ ]
Received Call [ ]

Time: _____

Contact : Bill Galloway
Firm/Agency : Union Carbide
Street :
City : Brownsville State: TX
Zip :
Phone : (210) 831-4501 Ext. _____
(210) 831-5278

SUBJECT: Stabilization

TELECON SUMMARY

11/22 Contacted facility and was requested to send a letter to Mr. Bill Galloway.

11/30 Called and talked with Mr. Galloway. He said that Union Carbide has completed all remedial activities and is about to sell the property. He told me to contact Robert O'Bryan (409) 948-5226.

12/4 Called and left a message for Mr. O'Bryan. Mr. O'Bryan returned my call and requested a letter addressed to him.

I:\REPA\R06044\RECORD\GALLOWAY.ROC

UNION CARBIDE CORPORATION [UCC]
Union Carbide Remediation Group (UCRG)
3301-5 Avenue South (P O Box 471)
Building 88 Room 24
Texas City, Texas 77592-0471

(409) 948-5226
(409) 948-5339 Fax

UNION CARBIDE

MEMORANDUM

05 December 1995

Mr. A L Senkayi, Ph.D. (214) 754-8765 (214) 922-9715 Fax
PRC Environmental Management, Inc.
350 North Saint Paul Street; Suite 2600
Dallas, TX 75201

SUBJECT: DOCUMENTATION OF STABILIZATION (INTERIM) MEASURES; CORRECTIVE MEASURES IMPLEMENTATION - SWMU Z

REF: Letter to R E O'Bryan (UCC) from A L Senkayi (PRC) dated 04 DEC 95 [Documentation of Stabilization (Interim) Measures]

UCC SOLVENTS AND COATINGS MATERIALS DIVISION
BROWNSVILLE, TX FACILITY (210) 831-4501 (210) 831-5278 Fax
STAR ROUTE BOX 90 (2.5 miles east of Highway 511 on Highway 48)
BROWNSVILLE, TX 78521

TNRCC PERMIT No. HW-50318
TNRCC SOLID WASTE REGISTRATION No. 31108
EPA ID No. TXD008114092
TEXAS GENERAL LAND OFFICE COASTAL FACILITY CERTIFICATE No. 10027

Dear Dr. Senkayi:

Per our 04 DEC 95 phone conversation and in response to attached referred letter, attached / enclosed are the following documents:

- Letter to R E O'Bryan (UCC) from P S Lewis (TNRCC-Austin, TX; Corrective Action) dated 13 NOV 95 [RFI Report and Baseline Risk Assessment - Approval] **{attached}**
- Letter to R E O'Bryan (UCC) from P S Lewis (TNRCC-Austin, TX; Corrective Action) dated 20 JAN 95 [Corrective Measure Implementation Report for SWMU Z - Approval] **{attached}**
- Revised Risk Reduction Rules - Standard 2 Corrective Measures Implementation Report for Solid Waste Management Unit Z "Old Oil Skimmer Pits" Union Carbide Corporation Brownsville, TX Facility prepared by ENSR Consulting and Engineering 14 OCT 94 **{enclosed}**
- Risk Reduction Rules - Standard 2 Corrective Measures Implementation Report for Solid Waste Management Unit Z "Old Oil Skimmer Pits" Union Carbide Corporation Brownsville, TX Facility prepared by ENSR Consulting and Engineering 10 JUN 94 **{enclosed}**

If you should require any additional information, please feel free to contact me at (409) 948-5226.

Sincerely,

Robert E. O'Bryan
UCRG Remediation Program Manager

cc: C S Colman - 500* M E Tapp - 803*
* cover letter only
reo32:bv388

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

November 13, 1995

Mr. Robert E. O'Bryan
Site Remediation Coordinator
Union Carbide Chemicals and Plastics - Brownsville
P. O. Box 471
3301-5 Avenue South
Texas City, TX 77592-0471

Re: RFI Report and Baseline Risk Assessment - Approval
Union Carbide Chemicals and Plastics - Brownsville
TNRCC Industrial Solid Waste Reg. No. 31108
TNRCC Hazardous Waste Permit No. HW-50318
EPA ID No. TXD008114092

Dear Mr. O'Bryan:

The Texas Natural Resource Conservation Commission (TNRCC) has reviewed Union Carbide Chemicals and Plastic's (UCC&P's) Revised RCRA Facility Investigation Workplan submitted October 10, 1995. The TNRCC evaluation of this document indicates that the Revised Workplan is actually an RFI Report with a Baseline Risk Assessment. The TNRCC has determined the document characterizes a reasonable assurance of an effective investigation and simulated risk assessment to protect human health and the environment. Based on UCC&P's risk assessment the TNRCC has determined that no restrictions be placed on construction activities at the former UCC&P Brownsville facility. Therefore, the TNRCC hereby approves the document with no further investigation requirements. Since UCC&P has already issued public notice of closure for the entire facility the only action needed is proper deed recordation and certification for UCC&P.

It is the continuing obligation of persons associated with a site to assure that industrial solid or hazardous waste is managed in such a way that it does not cause the discharge or imminent threat of discharge of waste or endangerment of the public health and welfare (refer to 30 TAC 335.4). If the approved actions do not meet these requirements, the burden remains upon responsible persons to submit an amendment to the report and/or take any of the necessary and legal actions to correct such conditions.

If you have any questions concerning the comments in this letter, please contact Mr. Brad Wilkinson of the Corrective Action Team at (512) 239-2350, Mail Code MC 127.

Sincerely,

Paul S. Lewis

Paul S. Lewis, Manager
Corrective Action Section
Industrial & Hazardous Waste Division

PSL/bw

cc: Bill Gallagher, EPA Region VI - Dallas
Tony Franco, TNRCC Region 15 - Harlingen
Tennie Larson, I & HW Div., Corrective Action Section
(CA-193, Facility RFI Report)
(CA-375p - Deed Recordation)
(BLRA Approval - Central Plant Ground Water)

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

January 20, 1995

RECEIVED
JAN 30 1995
REO'B

Mr. Robert E. O'Bryan
Site Remediation Coordinator
Union Carbide Chemicals and Plastics - Brownsville
P. O. Box 471
3301-5 Avenue South
Texas City, Texas 77592-0471

Re: Corrective Measure Implementation Report for SWMU Z
Union Carbide Chemicals and Plastics - Brownsville
ISW Reg No. 31108
Hazardous Waste Permit No. HW-50318
EPA I.D. No. TXD008114092

Dear Mr. O'Bryan:

The Texas Natural Resource Conservation Commission (TNRCC) has received and reviewed Union Carbide Chemicals and Plastic's (UCC&P's) revised Corrective Measures Implementation Report for Solid Waste Management Unit (SWMU) Z submitted October 14, 1994. The TNRCC's evaluation of the report and discussions during the meeting held on November 7, 1994, indicates the Corrective Measures Implementation (CMI) Report characterize a reasonable assurance of an effective corrective measure. Therefore, the TNRCC hereby approves of the CMI Report. However, since UCC&P does not own the land, the staff's approval of the CMI does not relieve UCC&P of the responsibility of future investigation/remediation if necessary, or if conditions change.

It is the continuing obligation of persons associated with a site to assure that industrial or hazardous municipal waste is managed in such a way that it does not cause the discharge or imminent threat of discharge of waste or endangerment of the public health and welfare (refer to 30 TAC 335.4). If the approved Corrective Measure Implementation Report does not meet these requirements, the burden remains upon responsible persons to submit an amendment to the report and/or take any of the necessary and legal actions to correct such conditions.

If you have any questions concerning the comments in this letter, please contact Mr. Brad Wilkinson of the Corrective Action Team at (512) 239-2350.

Sincerely,

Paul S. Lewis

Paul S. Lewis, Manager
Corrective Action Section
Industrial & Hazardous Waste Division

PSL:BW/jo

cc: Bill Gallagher, EPA Region VI - Dallas
TNRCC Region 15 - Harlingen
Tennie Larson, I & HW Div., Corrective Action Section
(CA- 375, CA-550 & CA-999 SWMU Z)

UNION CARBIDE CORPORATION (UCC)
Union Carbide Remediation Group (UCRG)
3301-5 Avenue South (P O Box 471)
Building 88 Room 24
Texas City, Texas 77592-0471

(409) 948-5226
(409) 948-5339 Fax

UNION CARBIDE

MEMORANDUM

14 October 1994

CERTIFIED MAIL RETURN RECEIPT REQUEST No. P319085962

Mr. Paul S. Lewis, Manager (512) 239-2340 (512) 239-2346 Fax
Corrective Action Section
Industrial and Hazardous Waste Division
Texas Natural Resource Conservation Commission (TNRCC)
1700 North Congress
Stephen F Austin Building
P O Box 13087, Capitol Station
Austin, Texas 78711-3087

SUBJECT: SWMU Z "OLD OIL SKIMMER PITS";
REVISED CORRECTIVE MEASURE IMPLEMENTATION REPORT

REF: Letter to R E O'Bryan (UCC) from P S Lewis (TNRCC-Austin, TX) dated 19 SEP 94 [Corrective Measure Implementation Report for SWMU Z]

UCC SOLVENTS AND COATINGS MATERIALS DIVISION
BROWNSVILLE, TX FACILITY (210) 831-4501 (210) 831-5278 Fax
STAR ROUTE BOX 90 (2.5 miles east of Highway 511 on Highway 48)
BROWNSVILLE, TX 78521

TNRCC PERMIT No. HW-50318
TNRCC SOLID WASTE REGISTRATION No. 31108
EPA ID No. TXD008114092

Dear Mr. Lewis:

Per attached referenced letter, enclosed are two sets of the SWMU Z Revised Corrective Measure Implementation (CMI) Report for Risk Reduction Rules (R^3) Standard 2 closure. An additional set is being sent to TNRCC - District 15 office.

UCC has addressed the three issues enumerated in attached referenced letter by providing corrections and additional information within the enclosed subject revised CMI report. A summary of the corrections / additional information is provided below.

1. The groundwater laboratory results from Monitor Well MW-7692-2 displayed a total dissolved solid (TDS) concentration of 0.0024 parts per million (ppm). This result was in error; the original laboratory data reported a result of 24,000 milligrams per liter (i.e., ppm). Corrected analytical sheets have replaced the erroneous sheets as provided in Appendix C.

2. Total petroleum hydrocarbons (TPH) were left in place in the east sidewall excavation since analysis of specific Appendix IX constituents of TPH (i.e., polycyclic aromatic hydrocarbons, volatile aromatic hydrocarbons and phenol) showed all parameters to be below Standard 1 or Standard 2 R^3 Closure Criteria. [For your information, attached is the Standard Operating Procedure for TPH by Gas Chromatography - Mass Spectrometry.] These results are discussed in detail in Section 4.2 of subject enclosed report. Summary Table 4-1 was revised to reflect all constituent analyses. Also, corrected Figures 1-3 and 4-1 have replaced the previously issued erroneous figures.

3. Site specific background concentrations for metals were calculated by constructing a tolerance interval from background samples. Table 1-2 in Section 1-1 reports the results of these calculations.

Based on the data presented in the enclosed subject revised CMI report and the original data presented in the RCRA Facility Investigation Plan dated 30 JUL 93, UCC has demonstrated that SWMU Z met the criteria for R^3 Standard 2 and can be closed with no further action. The facility's land owner, Brownsville Navigation District (BND), will deed record (refer to Appendix E) this area in the Cameron County deed records within 90 days of TNRCC acceptance of this report.

The BND have expressed a need for obtaining TNRCC clearance expeditiously so as to proceed with leasing to potential business(es). Therefore, your timely review of subject document as well as previously submitted documents concerning this site will be greatly appreciated. If you should require any additional information, please feel free to contact me at (409) 948-5226.

Sincerely,

Robert E. O'Bryan*
Brownsville, TX; Torrance, CA; and Sunnyvale, CA Sites Remediation Program Manager

cc:
G M Alsop - 511*
B P Basile - ENSR Houston, TX**
C S Colman - 500**
H W B Estes - ENSR Houston, TX*
T Franco - TNRCC15 Harlingen, TX*
B Gallagher - EPA VI Dallas, TX***
C J Kruse - BND*
T Larson - TNRCC Austin, TX***
D K Ramsden - ENSR Houston, TX*
S I Shah - 511**
M E Tapp - 803**
Location 526 File*

* complete report
** cover letter, executive summary, Sections 1 - 7 only
*** cover letter only

reo28:bv349

UNION CARBIDE CORPORATION [UCC]
Union Carbide Remediation Group (UCRG)
3301-5 Avenue South (P O Box 471)
Building 88 Room 24
Texas City, Texas 77592-0471

(409) 948-5226
(409) 948-5339 Fax

UNION CARBIDE

MEMORANDUM

10 June 1994

Richard Clarke, Team Leader (512) 239-2368
Closure Team, Corrective Action Section
Industrial and Hazardous Waste Division
Texas Natural Resource Conservation Commission (TNRCC)
1700 North Congress
Stephen F Austin Building
P O Box 13087, Capitol Station
Austin, Texas 78711-3087

SUBJECT: SWMU Z "OLD OIL SKIMMER PITS";
CLOSURE COMPLETION REPORT

UCC SOLVENTS AND COATINGS MATERIALS DIVISION
BROWNSVILLE, TX FACILITY (210) 831-4501 (210) 831-5278 Fax
STAR ROUTE BOX 90 (2.5 miles east of Highway 511 on Highway 48)
BROWNSVILLE, TX 78521

TNRCC PERMIT No. HW-50318
TNRCC SOLID WASTE REGISTRATION No. 31108
EPA ID No. TXD008114092

Dear Mr. Clarke:

Enclosed are two sets of the SWMU Z Closure Completion Report for Risk Reduction Rules (R^3) Standard 2 closure. An additional set is being sent to TNRCC - District 15 office.

As appropriate, closure was performed in accordance with 30 TAC 335.551 - .569. In the RFI field investigation and subsequent RFI Work Plan dated 30 JUL 93, UCC demonstrated that SWMU Z met the criteria for R^3 Standard 2 and could be closed without remediation. However, UCC remediated SWMU Z to remove total petroleum hydrocarbon (TPH) concentrations sufficiently to satisfy UCC's internal divestiture criteria. The facility's land owner, Brownsville Navigation District (BND), will deed record this area in the Cameron County deed records within 90 days of TNRCC acceptance of this report.

The BND have expressed a need for obtaining TNRCC clearance so as to proceed with leasing to potential business(es); therefore, your timely review of this document as well as previously submitted documents concerning this site will be greatly appreciated. If you should require any additional information, please feel free to contact me at (409) 948-5226.

Sincerely,

Robert E. O'Bryan
Brownsville, TX; Torrance, CA; and Sunnyvale, CA Sites Remediation Program Manager

cc:

G M Alsop - 511*	C J Kruse - BND*
C S Colman - 500**	D K Ramsden - ENSR*
H W B Estes - ENSR*	S I Shah - 511**
Executive Director - TNRCC*	M E Tapp - 803**
T Franco - TNRCC15 (Weslaco)*	Location 526 File*

* complete report
** cover letter, executive summary, Sections 1 - 7 only

reo27:bv325

PRC Environmental Management, Inc.
350 N. St. Paul Street, Suite 2600
Dallas, TX 75201
214-754-8765
Fax 214-922-9715

December 4, 1995

Mr. Robert O'Bryan
Union Carbide Corporation
3301 Fifth Avenue South
Building 88, Room 24
Texas City, TX 77591-0471

Subject: Documentation of Stabilization (Interim) Measures

Dear Mr. O'Bryan:

This is in reference to our telephone conversation on December 4, 1995, concerning stabilization (interim) measures implemented at your facility located in Brownsville, Texas (EPA ID. No. TXD008114092). As I explained to you, PRC Environmental Management, Inc. (PRC), is assisting the U.S. Environmental Protection Agency (EPA) Region 6 to research and document stabilization (interim) activities that have been conducted at high-priority facilities throughout the region.

Stabilization involves the use of short-term interim actions, during the Resource Conservation and Recovery Act (RCRA) Corrective Action Process, to control imminent threats to human health and the environment and to prevent the further spread of contamination while long-term remedies are being pursued. Table 1 lists examples of stabilization measures for various units and release types. Table 2 presents examples of stabilization technologies for containment and treatment of contaminated soil and ground water. If your facility has conducted any of these short-term stabilization measures, EPA would like to (1) know about them, (2) credit your facility for conducting these activities, and (3) include the information on the activities conducted in its database.

Please provide information for at least one significant stabilization event that has been completed at your facility. The information you provide should include the following:

- A description of the activities conducted
- The EPA or state notification mechanism requiring your facility to undertake such activities
- Dates when the activities were implemented
- State or EPA written acknowledgment that those activities were successfully completed

We are interested in any stabilization activities that might have been conducted under supervision of the EPA or state agency, or on a voluntary basis.

Because of time limitations, we are requesting that you provide the information requested by December 20, 1995.

Please call me at (214) 754-8765 if you have any questions or require further information.

Sincerely,

Abu L. Senkayi, Ph.D.

ALS/ms

cc: Anthony L. Gardner, PRC
David Vogler, USEPA
File

TABLE 1

EXAMPLES OF STABILIZATION MEASURES

Sheet 1 of 2

SWMU/MEDIA	STABILIZATION MEASURE
Containers	
►	Overpack Container
►	Storage Area Construction (Move to New Storage Area)
►	Segregate
►	Sample and Analyze
►	Treatment, Storage, and/or Disposal
►	Temporary Cover
Tanks	
►	Secondary Containment of Overflow
►	Leak Detection/Repair, Partial or Complete Removal
Surface Impoundments	
►	Head Reduction
►	Free Liquids and Highly Mobile Wastes Removal
►	Stabilization/Repair of Side Walls, Dikes, or Liner(s)
►	Temporary Cover
►	Runoff/Run-on Control (Diversion or Collection Devices)
►	Sample/Analyze for Documentation of Concentration of Constituents Left in Place When a Surface Impoundment handling Characteristic Wastes is Clean Closed
►	Interim Ground Water Measures (see Ground Water section of this table)
Landfills	
►	Runoff/Run-on Control (Diversion or Collection Devices)
►	Head Reduction on Liner and/or in Leachate Collection System
►	Leachate Collection/Removal System Inspection or French Drain
►	Repair Leachate Collection/Removal System or French Drain
►	Temporary Cap
►	Waste Removal (see Soils Section of this table)
	Interim Ground Water Measures (see Ground Water Section of this table)
Waste Piles and Contaminated Soils	
►	Runoff/Run-on Control (Diversion or Collection Devices)
►	Temporary Cap
►	Waste Removal (see Soils Section of this table)
►	Interim Ground Water Measures (see Ground Water Section of this table)

TABLE 1

EXAMPLES OF STABILIZATION MEASURES

Sheet 2 of 2

SWMU/MEDIA	STABILIZATION MEASURE
Soils	
►	Sampling/Analysis, Disposal
►	Runoff/Run-on Control (Diversion or Collection Devices)
►	Temporary Cap/Cover
Ground Water	
►	Interceptor Trench/Sump/Subsurface Drain
►	Pump-and-treat; In-situ Treatment
►	Temporary Cap/Cover
Surface Water Releases (Point and Nonpoint)	
►	Overflow/Underflow Dams
►	Filter Fences
►	Runoff/Run-on Control (Diversion or Collection Devices)
►	Regrade/Revegetate
►	Sample and Analyze Surface Waters and Sediments or Point Source Discharges
Gas Migration Control	
►	Barriers/Collection/Treatment/Monitoring
Particulate Emissions	
►	Truck Wash (Decontamination Unit)
►	Revegetation
►	Application of Dust Suppressant
Other Actions	
►	Fencing to prevent Direct Contact
►	Sampling Offsite Areas
►	Alternate Water Supply to Replace Contaminated Drinking Water
►	Temporary Relocation of Exposed Population
►	Temporary or Permanent Injunction
►	Suspend or Revoke Authorization to Operate under Interim Status

Notes:

Source: Handbook, Stabilization Technologies for RCRA Corrective Actions, EPA/625/6-91/026, August 1991.

TABLE 2

EXAMPLES OF SOIL AND GROUND WATER STABILIZATION TECHNOLOGIES

Containment Technologies
Physical Barriers Slurry Cutoff Trench/Wall Sheet Pile Cutoff Wall Grouting[1] Capping Surface Water Control Methods
Hydraulic Barriers Drains/Trenches Pumping (Extraction/Recharge)[1][2][3] Gas Venting[1][2]
Treatment Technologies
Solidification/Stabilization Soil Flushing[1][2][3] Bioremediation Vacuum Extraction[1][2][3] Gas Venting[1][2]

Notes:

- Technology enhancements that may be applicable to a number of containment and treatment technologies include:

  [1] Horizontal versus vertical well systems
  [2] Hydraulic fracturing of contaminated media
  [3] Pulsed pumping

PRC Environmental Management, Inc.
350 N. St. Paul Street, Suite 2600
Dallas, TX 75201
214-754-8765
Fax 214-922-9715

November 27, 1995

Mr. Bill Galloway
Union Carbide Corporation
2.5 Miles East of Hwy. 511 on Hwy. 48
Brownsville, TX 78521

Subject: Documentation of Stabilization (Interim) Measures

Dear Mr. Galloway:

PRC Environmental Management, Inc. (PRC), is assisting the U.S. Environmental Protection Agency (EPA) Region 6 to research and document stabilization (interim) activities that have been conducted at RCRA facilities throughout the region.

Stabilization involves the use of short-term interim actions, during the Resource Conservation and Recovery Act (RCRA) Corrective Action Process, to control imminent threats to human health and the environment and to prevent the further spread of contamination while long-term remedies are being pursued. Table 1 lists examples of stabilization measures for various units and release types. Table 2 presents examples of stabilization technologies for containment and treatment of contaminated soil and ground water. If your facility has conducted any of these short-term stabilization measures, EPA would like to (1) know about them, (2) credit your facility for conducting these activities, and (3) include the information on the activities conducted in its database.

Please provide information for at least one significant stabilization event that has been implemented at your facility (EPA ID No. TXD008114092). The information you provide should include the following:

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We are interested in any stabilization activities that might have been conducted under supervision of the EPA or state agency, or on a voluntary basis.

Because of time limitations, we are requesting that you provide the information requested by December 13, 1995.

Please call me at (214) 754-8765 if you have any questions or require further information.

Sincerely,

Abu L. Senkayi, Ph.D.

ALS/ms

cc: Anthony L. Gardner, PRC
David Vogler, USEPA
File

TABLE 1

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articulate Emissions	
►	Truck Wash (Decontamination Unit)
►	Revegetation
►	Application of Dust Suppressant
Other Actions	
►	Fencing to prevent Direct Contact
►	Sampling Offsite Areas
►	Alternate Water Supply to Replace Contaminated Drinking Water
►	Temporary Relocation of Exposed Population
►	Temporary or Permanent Injunction
►	Suspend or Revoke Authorization to Operate under Interim Status

Notes:

Source: Handbook, Stabilization Technologies for RCRA Corrective Actions, EPA/625/6-91/026, August 1991.

TABLE 2

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Notes:

- Technology enhancements that may be applicable to a number of containment and treatment technologies include:

  [1] Horizontal versus vertical well systems
  [2] Hydraulic fracturing of contaminated media
  [3] Pulsed pumping

Union Carbide Corporation

Brownsville, Texas

ENSR

Risk Reduction Rules Standard 2 Closure Completion Report for Solid Waste Management Unit Z, "Old Oil Skimmer Pits" Union Carbide Corporation Brownsville, Texas Facility Brownsville, Texas

ENSR Consulting and Engineering

June 1994

Document Number 6900-080-391

UNION CARBIDE CORPORATION [UCC]
Union Carbide Remediation Group (UCRG)
3301-5 Avenue South (P O Box 471)
Building 88 Room 24
Texas City, Texas 77592-0471

(409) 948-5226
(409) 948-5339 Fax

UNION CARBIDE

MEMORANDUM

10 June 1994

Richard Clarke, Team Leader (512) 239-2368
Closure Team, Corrective Action Section
Industrial and Hazardous Waste Division
Texas Natural Resource Conservation Commission (TNRCC)
1700 North Congress
Stephen F Austin Building
P O Box 13087, Capitol Station
Austin, Texas 78711-3087

SUBJECT: SWMU Z "OLD OIL SKIMMER PITS";
CLOSURE COMPLETION REPORT

UCC SOLVENTS AND COATINGS MATERIALS DIVISION
BROWNSVILLE, TX FACILITY (210) 831-4501 (210) 831-5278 Fax
STAR ROUTE BOX 90 (2.5 miles east of Highway 511 on Highway 48)
BROWNSVILLE, TX 78521

TNRCC PERMIT No. HW-50318
TNRCC SOLID WASTE REGISTRATION No. 31108
EPA ID No. TXD008114092

Dear Mr. Clarke:

Enclosed are two sets of the SWMU Z Closure Completion Report for Risk Reduction Rules (R^3) Standard 2 closure. An additional set is being sent to TNRCC - District 15 office.

As appropriate, closure was performed in accordance with 30 TAC 335.551 - .569. In the RFI field investigation and subsequent RFI Work Plan dated 30 JUL 93, UCC demonstrated that SWMU Z met the criteria for R^3 Standard 2 and could be closed without remediation. However, UCC remediated SWMU Z to remove total petroleum hydrocarbon (TPH) concentrations sufficiently to satisfy UCC's internal divestiture criteria. The facility's land owner, Brownsville Navigation District (BND), will deed record this area in the Cameron County deed records within 90 days of TNRCC acceptance of this report.

The BND have expressed a need for obtaining TNRCC clearance so as to proceed with leasing to potential business(es); therefore, your timely review of this document as well as previously submitted documents concerning this site will be greatly appreciated. If you should require any additional information, please feel free to contact me at (409) 948-5226.

Sincerely,

Robert E. O'Bryan
Brownsville, TX; Torrance, CA; and Sunnyvale, CA Sites Remediation Program Manager

cc:

G M Alsop - 511*	C J Kruse - BND*
C S Colman - 500**	D K Ramsden - ENSR*
H W B Estes - ENSR*	S I Shah - 511**
Executive Director - TNRCC*	M E Tapp - 803**
T Franco - TNRCC15 (Weslaco)*	Location 526 File*

* complete report
** cover letter, executive summary, Sections 1 - 7 only

reo27:bv325

Union Carbide Corporation
Brownsville,Texas

Risk Reduction Rules Standard 2
Closure Completion Report for Solid
Waste Management Unit Z, "Old Oil Skimmer Pits"
Union Carbide Corporation
Brownsville, Texas Facility

ENSR Consulting and Engineering

June 1994

Document Number 6900-080-391

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(Cont'd)

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EXECUTIVE SUMMARY

ENSR Consulting and Engineering (ENSR), working with Union Carbide Corporation (UCC), managed the remediation and closure of Solid Waste Management Unit (SWMU) Z, "Old Oil Skimmer Pits," located at UCC's Brownsville, Texas facility prior to the facilities eventual divestiture back to the Brownsville Navigation District (BND). The remediation activities commenced on 17 NOV 93 and were completed on 01 FEB 94.

The RCRA Facility Investigation (RFI) Work Plan, submitted to the Texas Natural Resource Conservation Commission (TNRCC) on 30 JUL 93, indicates that SWMU Z soils meet Texas Risk Reduction Rules (RRR) Standard 2 criteria with no further environmental action being necessary. However, UCC has remediated SWMU Z to satisfy internal UCC divestiture criteria established for the Non-Appendix IX constituent, total petroleum hydrocarbons (TPH).

SWMU Z, known as the "Old Oil Skimmer Pits," consists of an area approximately 120 feet long and 50 feet wide, and 3.5 feet deep. The precise number of pits in this area is unknown. The unlined pits were operated between 1950 and 1957 by Amoco, previous owner of the facility, and were used to manage waste oil/water mixtures from site operations.

Prior to beginning remediation, notification was made to the TNRCC of UCC's plans to close SWMU Z under the Risk Reduction Rules by demonstrating the soils met Standard 2 criteria. The attainment of a Standard 2 closure requires that all wastes, waste residues and contaminated media be removed or decontaminated to Medium Specific Concentrations (MSC), the area be deed recorded by the Brownsville Navigation District to indicate the levels of contamination that remain, and a Closure Completion Report be submitted to the TNRCC. To demonstrate the attainment of Standard 2 criteria, UCC established Standard 2 risk criteria for the RFI by either using MSCs from the TNRCC Appendix II table, or developing MSCs from appropriate alternative methods using RRR approaches. As allowed by the Risk Reduction Rules, a 100X adjustment to the groundwater MSCs (GW) was made due to total dissolved solids in groundwater consistently averaging over 10,000 mg/l, (see the RFI Work Plan). The adjusted GW was used to calculate an adjusted soil-to-groundwater cross media factor (GWP), which was also multiplied by a factor of 100, resulting in site-specific GWP values adjusted by a total factor of 10,000. These adjusted values were the Standard 2 GWP evaluation criteria for the closure of SWMU Z. UCC demonstrated it met Non-Residential Soil Requirements by presenting its Standard Industrial Classification (SIC) 2869, which fulfills the description of a non-residential property and by being located in an industrial land use area.

The RFI Work Plan, submitted 30 JUL 93, and the Corrective Measures Implementation (CMI) RRR Work Plan, submitted to the TNRCC on 01 APR 94, demonstrate that the SWMU Z soils met Standard 2 criteria prior to remediation for divestiture purposes. Arsenic, lead and mercury were identified during the RFI as exceeding Standard 2 MSCs for SWMU Z, but these are considered by UCC to be representative of background soil concentrations.

Divestiture remedial activities were conducted in accordance with the approved Project Health and Safety Plan. The excavated area measured approximately 130 feet by 50 feet and was approximately 12 feet deep. Groundwater was encountered during the excavation at approximately 12 feet, in visually clean native soil. Soil verification samples were collected from the excavation side walls as specified in the CMI Work Plan, dated 01 APR 94, but no samples were collected from the floor of the excavation due to groundwater being encountered. Monitoring wells installed and sampled in SWMU Z during the RFI indicated compliance with groundwater RRR Standard 2 criteria.

Preliminary field estimates indicate that approximately 2,545 cubic yards of soil were excavated from SWMU Z. The soils were segregated and placed into stockpiles based on visual evaluation of their hydrocarbon contamination.

Soil verification samples collected from the sidewalls were analyzed for the presence of TPH as determined by GC/MS and were determined to meet UCC's divestiture criteria (1,000 mg/kg). To demonstrate the low risk to human health and the environment posed by the remaining soils, at TNRCC's request, and to satisfy the requirements of the disposal facilities, the divestiture soil verification samples were also analyzed for selected metals, and volatile and semi-volatile extractable compounds, including polynuclear aromatic hydrocarbons.

The excavation was backfilled with clean soil which had been previously analyzed by UCC for the presence of hazardous constituents and determined to be suitable for its intended use.

The waste soils disposed of off site were managed as Class I and Class II (Nonhazardous) Industrial Solid Waste. Waste manifests indicate that 1,122 cubic yards of soil was disposed of as Class II waste at Browning-Ferris Industries' Sinton, Texas landfill, and 1,578 cubic yards of Class I waste was disposed of at Texas Ecologists' landfill in Robstown, Texas.

UCC will provide deed certification information to the BND to be filed in the deed records of Cameron County, Texas. The BND shall provide proof of this filing within 90 days of TNRCC acceptance of this report.

On the basis of field observations as well as the analytical data presented in this report and the RFI Work Plan (30 JUL 93), UCC has concluded that the soils in SWMU Z meet Risk Reduction Standard 2 criteria.

1.0 INTRODUCTION

ENSR Consulting and Engineering (ENSR), working with Union Carbide Corporation (UCC) managed the closure of Solid Waste Management Unit (SWMU) Z, "Old Oil Skimmer Pits", located at UCC's Brownsville, Texas facility prior to the eventual divestiture of the facility to the Brownsville Navigation District (BND). The closure, which commenced on 17 NOV 93, was performed in accordance with Title 30 of the Texas Administrative Code (TAC) 335, Subchapter S. This report documents the closure procedures and describes work performed, analytical results, waste disposition, final configuration of SWMU Z, and certification of closure by UCC.

1.1 Objectives of Remediation

Based on RFI activities and analyses, SWMU Z meet Risk Reduction Rules Standard 2 criteria with no further action. Table 1-1 presents the concentrations of waste constituents within SWMU Z compared with the Maximum Contaminant Level (MCL) established for each constituent for this site.

UCC believes arsenic (7.9 mg/kg), lead (200 mg/kg), and mercury (22.8 mg/kg), though detected during the RFI as slightly exceeding Standard 2, are reflective of the background concentration (see Facility Background Investigation Report, 30 JUL 93) of the facility's geographical location and does not require any remedial action under TNRCC RRR.

To satisfy criteria within its divestiture agreement with the BND, UCC has remediated SWMU Z solely to adequately remediate total petroleum hydrocarbon (TPH) identified within SWMU Z during the divestiture investigation. SWMU Z is being closed by demonstrating that the environmental conditions satisfy the Risk Reduction Rules (RRR) Standard 2 Closure criteria (30 TAC § 335.555-560). Previous RCRA Facility Investigations (RFIs) of the unit indicated that remediation to a Standard 1 criteria (30 TAC § 335.554) would not be practical, given the extensive industrial history of the site. As a result, UCC received permission from the landowner, Brownsville Navigation District, to close SWMU Z to RRR Standard 2 criteria.

1.2 Background Information

UCC conducted an investigation of SWMU Z as part of the RFI conducted for the Brownsville facility. The results of the previous RFI for SWMU Z are presented in the RFI Work Plan, submitted 30 JUL 93 and the recently submitted Corrective Measures Implementation (CMI) Work Plan, dated 01 APR 94. As demonstrated by Table 1-1, SWMU Z was determined by the RFI

TABLE 1-1

Shallow and Deep Soil Results for SWMU Z
Greater Than Standard 2
From the RFI
UCC - Brownsville, Texas

FIELD ID	SHALLOW SOIL RESULTS (mg/kg)		CRITERIA (mg/kg)	
	PARAMETER	CONCENTRATION	GWP-IND	SAI-IND
SS-7693-7-2	ARSENIC	7.9	500	3.27
SS-7693-8-2	ARSENIC	4.9	500	3.27

FIELD ID	DEEP SOIL RESULTS (mg/kg)		CRITERIA (mg/kg)
	PARAMETER	CONCENTRATION	GWP-IND
SS-7693-5-2/19	LEAD	200	150
SS-7693-5-2/19	MERCURY	22.8	20

process to meet RRR Standard 2 criteria and, therefore, be eligible for immediate closure without further action.

1.3 Site Geology

1.3.1 General Site Geology and Stratigraphy

The UCC Brownsville, Texas facility encompasses a topographically flat to gently sloping site. Excluding areas of higher relief, the UCC site has a mean elevation of 8-10 feet above mean sea level (MSL) with a gentle slope toward the northeast. Topographically high areas include tank dikes and areas filled with material as a result of past construction and road building activities. The topography of the site prior to plant construction is presumed to have been a flat lowland area within the flood plain of the Rio Grande that may have ponded or flooded seasonally.

Sediments encountered during the RFI background investigation are the result of fluvial deposition during both the Holocene and Upper Pleistocene epochs, as discussed in Section 3.3.1 of the RFI Work Plan (RFI), submitted 30 JUL 93. Layers of sand, silt, and clay were deposited, scoured, removed, and redeposited in lobate to linear bands that generally trend southeast following the rivers and streams which deposited them. Generally, the finer grained clays and silts were laid down as overbank and interdistributary deposits between stream channels where coarser sands predominate. As the streams or rivers moved laterally, so did their deposits creating a complex sequence of interbedded sands, silts, and clays.

1.3.2 Site-Specific Geology and Stratigraphy

The stratigraphic units beneath the UCC site have been characterized and differentiated (beginning with the shallowest unit) as follows:

Zone 1A: **Fill: Sand, Sandy Clay, Silty Clay, Clay:** brown to reddish brown, dark gray, loose, firm to hard with occasional shell, gravel, organic debris, and lime, 4 to 10 feet thick.

Zone 1: **Silty Clay and Clay:** brown, reddish brown, gray, dark greenish gray, soft-stiff, occasional gray silt vertical partings, orange staining, occasional caliche nodules, calcareous shell fragments, and black carbon streaking, 5 to 12 feet thick.

Zone 2: **Sands, Silty Sands, Clayey Sands, Silts, Clayey Silts:** fine-grained, yellow-brown, tan-brown, dark gray-greenish gray, moist-wet, very loose to medium dense, 2 to 32 feet thick.

Zone 3: **Silty Clay, Sandy Clay, Clay:** greenish-gray, brown, occasional green gray mottling, hard, caliche nodules, orange staining, 5.7 to 16.8 feet thick.

Zone 4: **Silts, Clayey Silts, Silty Sand:** fine-grained, brown to reddish brown, gray, occasional olive gray mottling, moist, loose-medium dense, stiff-very stiff, 1 to 7.3 feet thick.

Zone 5: **Silty Clay and Clay:** brown-reddish brown, olive gray mottling, stiff to very hard, occasional orange staining, 11 to 27 feet thick.

Zone 6: **Silts, Silty Sands, Clayey Silts:** fine grained, brown, moist-wet, medium dense-dense, firm, 1 to 7.2 feet thick.

Stratigraphic cross-sections were generated depicting the geologic units and their inter-relationships using data gathered during the JUN 92 Background Investigation's exploratory boring program and monitor well installations. Depths to stratum boundaries and strata geometry are inferred between data points (exploratory soil borings and monitor wells). Refer to Figure A-24 (Appendix A of the RFI Work Plan) to view a geologic cross-section location map. The stratigraphic sequence and relationship of the hydrogeologic units and geologic units and an explanation of graphic symbols is presented as Figures A-25 and A-26 (Appendix A of the RFI Work Plan). ENSR's lithologic logs, strata descriptions, and stratigraphic cross sections were compared to and generally confirmed the interpretation in the 1991 Halliburton NUS reports.

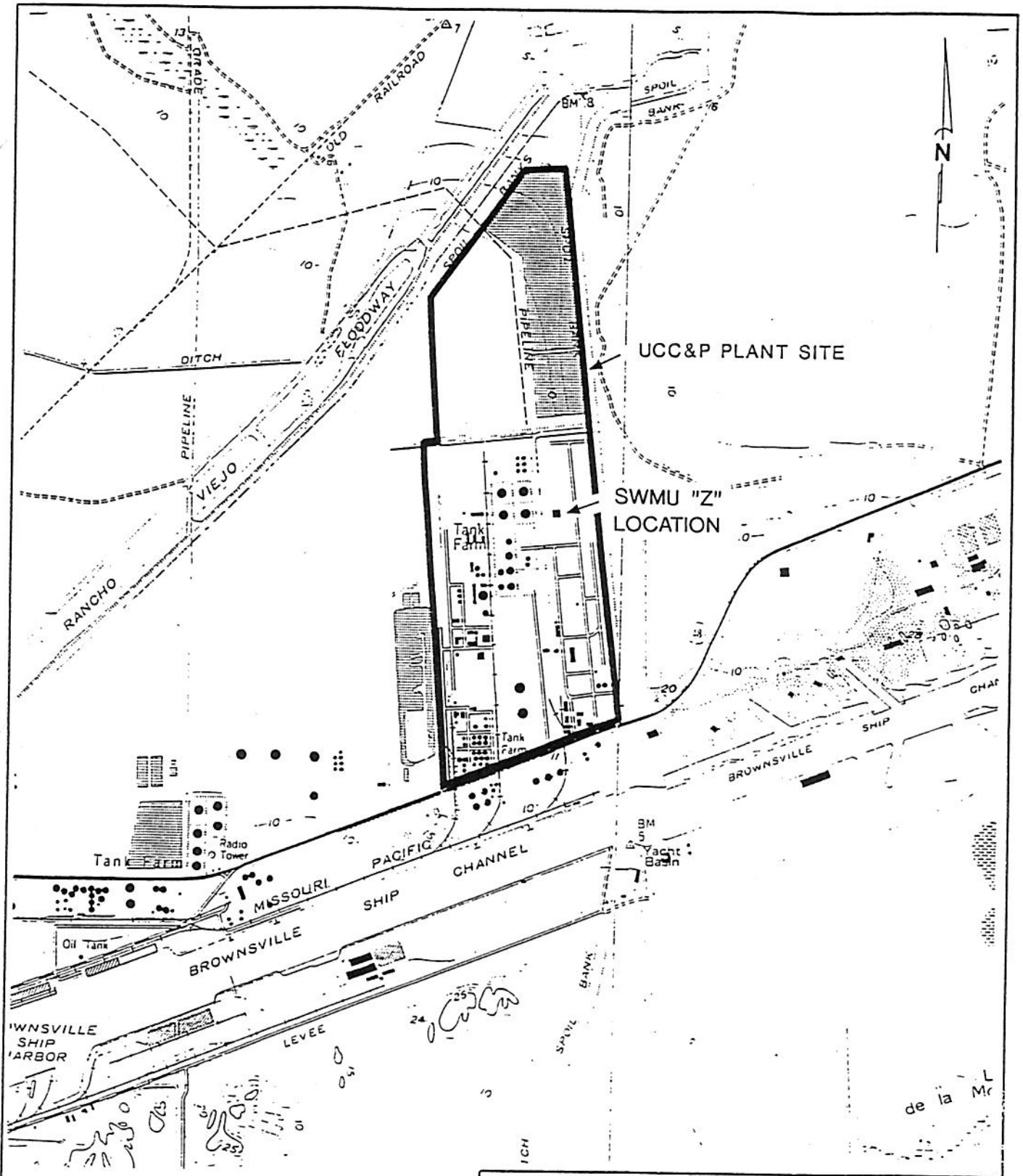
1.4 Description of SWMU Z

1.4.1 Operational History of SWMU Z

This unit operated between 1950 and 1957 during Amoco ownership, and was used to manage waste oil/water mixtures from site operations.

1.4.2 Physical Description of SWMU Z

The location of the facility is shown in Figure 1-1. SWMU Z is located in Facility Zone 76, see Figure 1-2 and Figure 1-3 (Detail). Figure 1-3 shows the locations of the RFI sample borings and monitor well. These sample locations are for the borings but for each boring, two or more samples were taken during the RFI. Those samples are designated with the boring number on this map and with the x replacing the various sample depths. The results for these specific samples are presented in the RFI Work Plan submitted to the TNRCC on 30 JUL 93. Location of remediation verification samples are presented in Section 4.0. The unit consisted of two long, narrow, earthen pits and numerous other smaller earthen pits. The precise number of unlined pits comprising the unit is unknown. The unit appeared to be approximately 120 feet long, 50 feet wide, and 3.5 feet deep.



REFERENCE: U.S.G.S. Quadrangle Map for East Brownsville and Palmito Hill, Texas, 1983.

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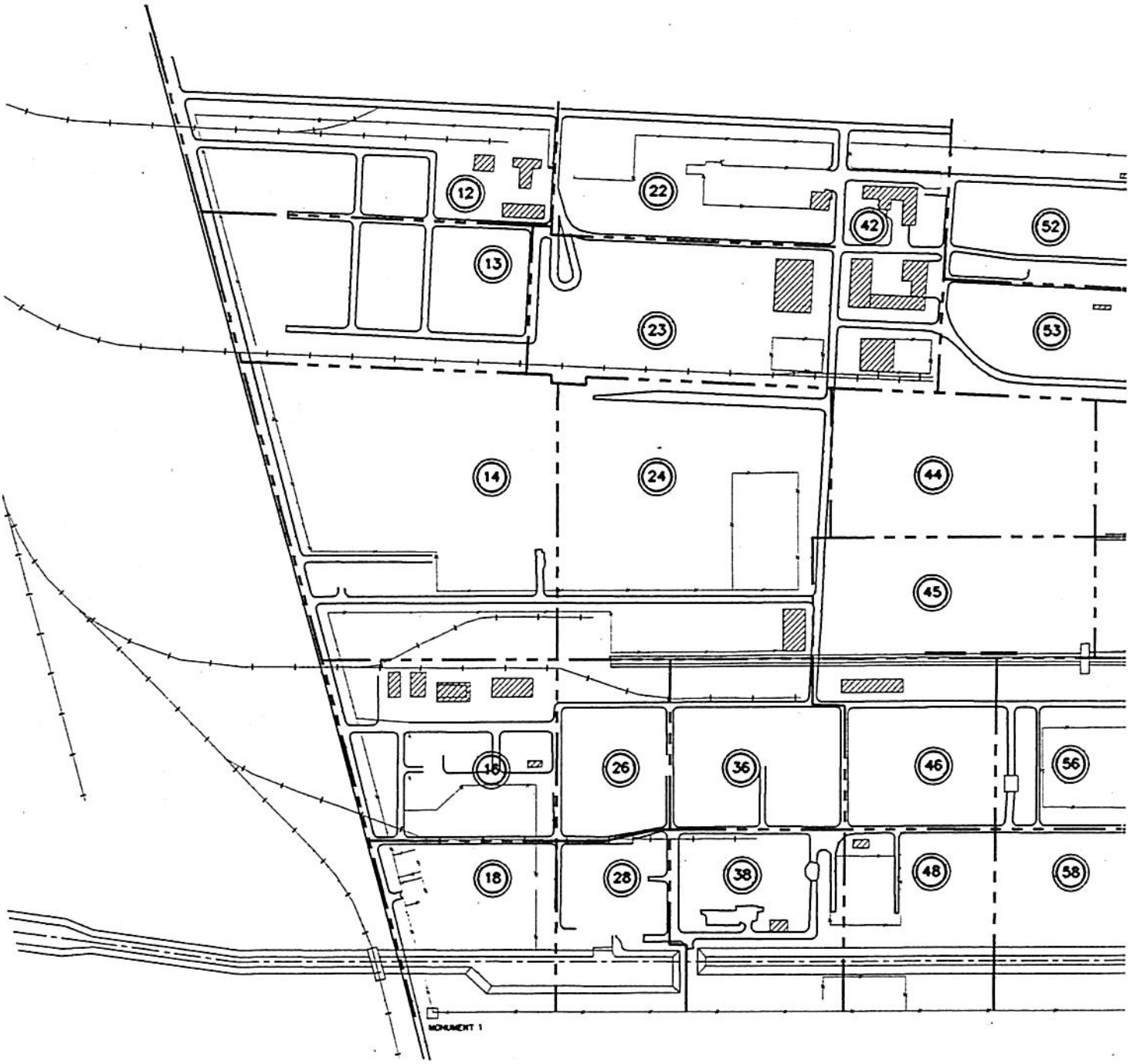
FIGURE 1-1

SITE LOCATION MAP

UNION CARBIDE CORPORATION
BROWNSVILLE, TEXAS

DRAWN BY: SJF	DATE: 9-4-92	PROJECT NUMBER: 6900-080
CHK'D BY:	REVISED:	

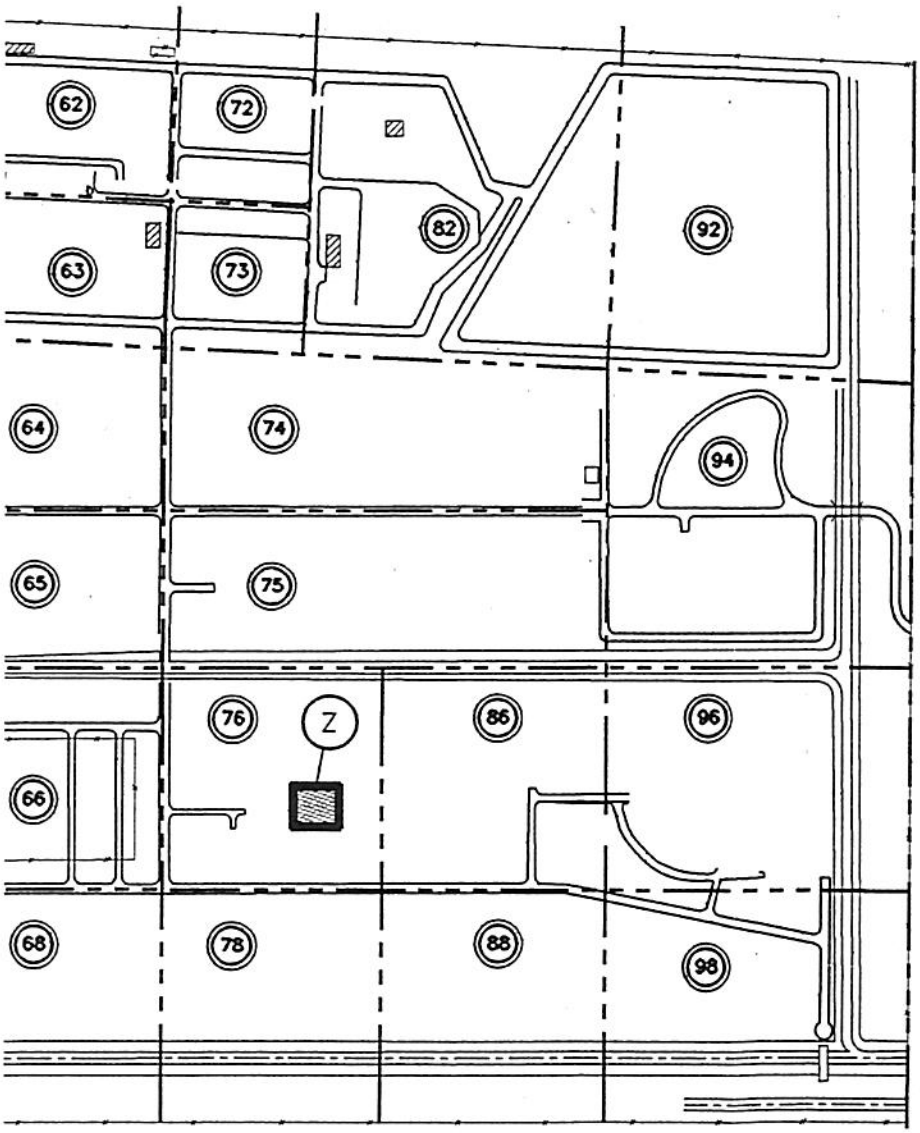
TOPO



MONUMENT 1

PLANT HORIZONTAL POSITION – 00+00 E; 00+00 N
TEXAS STATE PLANE POSITION – X=2,369,903.00;
Y= 109,863.68
ELEVATION MEAN LOW TIDE – 11.94 MLT
ELEVATION MEAN SEA LEVEL – 10.98 NGVD 1929 DATUM

6900254
5-9-94



LEGEND

- PLANT ZONE BOUNDARY
- (76) PLANT ZONE DESIGNATION
- (Z) SWMU DESIGNATION
- SWMU BOUNDARY
- EXISTING BUILDINGS ON SITE

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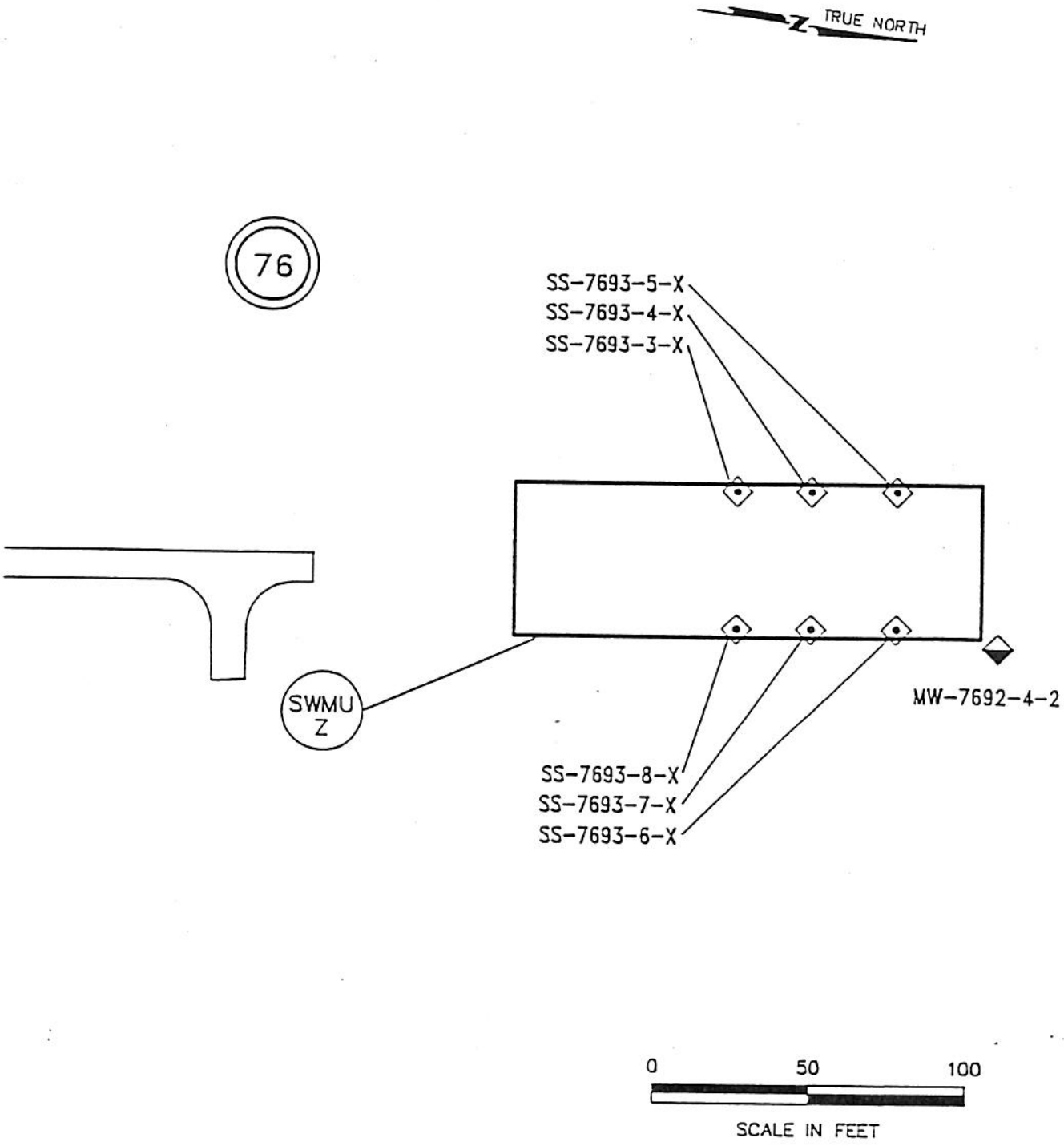
FIGURE 1-2

LOCATION OF SWMU Z
UNION CARBIDE CORPORATION
BROWNSVILLE, TEXAS

DRAWN: N.L.JONES	DATE: 09 MAR 94	PROJECT NUMBER:
APPV'D:	REVISED: 12 MAY 94	6900-080-361



LEGEND

- 76 – FACILITY ZONE DESIGNATION
- ◇ – ENSR SOIL BORING
- ◆ – ENSR MONITOR WELL LOCATION

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FIGURE 1-3
SWMU Z – RFI BORING AND MONITOR WELL LOCATIONS
UNION CARBIDE CORPORATION
BROWNSVILLE, TEXAS

DRAWN: LG/SF/JM	DATE: 07 JUN 94	PROJECT NUMBER:
APPV'D:	REVISED:	6900-080-391

6900255

2.0 AGENCY INTERACTIONS

2.1 Notification Letter

UCC notified TNRCC's Executive Director, Mr. Anthony C. Grigsby of its intent to close SWMU Z with the attached letter, dated 19 OCT 93 (Appendix A).

2.2 TNRCC Response

UCC received the attached (Appendix A) TNRCC response to UCC's closure notification, dated 12 JAN 94.

2.3 Facility Audit by TNRCC

On 08 FEB 94, Mr. Carlos Rubinstein (TNRCC - District 15) performed an audit and inspection of the UCC Brownsville, Texas facility, accompanied by Mr. R.E. O'Bryan, UCC, Brownsville, Texas Site Remediation Program Manager. No substantive issues were determined as a result of that audit.

3.0 RATIONALE FOR SELECTION OF REMEDIATION STANDARD 2

This section presents an evaluation of criteria to be met for a RRR Standard 2 closure of SWMU Z.

3.1 Criteria for Attainment of Risk Reduction Standard 2

In accordance with 30 TAC §335.555 compliance with the standard is attained when the following criteria for non-hazardous industrial solid waste management units are met:

1) For closure of non-hazardous industrial solid waste management units, response to unauthorized discharges of non-hazardous industrial solid waste, and the remediation of media that have become contaminated by discharges of non-hazardous industrial solid waste or other contaminants, all waste and waste residues, contaminated design and operating system components such as liners, leachate collection systems and dikes, and contaminated media must be removed or decontaminated to Standard 2 Medium Specific Concentrations (MSC).

2) Also, the contaminant in a contaminated media of concern such as groundwater, surface water, air or soil shall not exceed MSC cleanup levels.

3) Attainment of Standard 2 cleanup levels shall be demonstrated by collection and analysis of samples from the contaminated media of concern utilizing techniques described in SW 846, Test Methods for Evaluating Solid Waste, United States Environmental Protection Agency (EPA) or other available guidance in developing a sampling and analysis plan appropriate for evaluation of the contaminants and environmental media. A sufficient number of samples shall be collected and analyzed for individual compounds to both accurately assess the risk to human health and the environment posed by the facility or area and to demonstrate the attainment of cleanup levels. Achievement of the cleanup levels shall be demonstrated by the following methods:

    a) direct comparison of the results of analysis of discreet samples of the medium of concern with the cleanup level;

b) for a data set of ten or more samples, statistical comparison of the results of analysis utilizing the 95% confidence limit of the mean concentration, as described in 30 TAC §335.553 (d)(2).

c) other statistical methods with prior approval of the executive director.

4) The person must prepare a document that he intends to use to fulfill the deed certification requirements of 30 TAC §335.560 and include the document as part of the Closure Completion Report.

5) The person must prepare a Closure Completion Report that documents compliance with 30 TAC §335.555.

3.2 Criteria for Selection of Non-Residential Soil Requirements

The facility property where the closure was conducted meets the conditions of non-residential property in accordance with 30 TAC § 335.557(2), which states that persons may provide documentation that the activities being conducted on the property satisfy the definition for non-residential properties set forth in § 335.553.

The definition of a non-residential property is *any real property or portion of a property not currently being used for human habitation or other purposes with a similar potential for human exposure, at which activities have been or are being conducted, having the primary Standard Industrial Classification (SIC) major group numbers 01-48 inclusive, 49 except 4941, 50-67 inclusive, 72-79 inclusive, 80 except 8051, 8059, 8062, 8063, 8069, 81 and 82 except 8211, 8221, 8222, 83 except 8351,8361, 84-86 except 8661, 87-91 inclusive, 92 except 9223, and 93-97 inclusive.*

The SIC code for UCC's Brownsville facility is 2869, which fulfills the description of a non-residential property. Therefore, the remediation standards for this closure are non-residential (industrial) standards.

In addition, the UCC facility is clearly located in an industrial land use area on property owned by the Brownsville Navigation District, which offers its land for lease for industrial development purposes.

3.3 Adjustments to MSCs for Standard 2 Closure

Standard 2 risk criteria were established for the RFI by using either MSCs provided in the tables in Appendix II of 30 TAC § 335 Subchapter S or calculating criteria using TNRCC RRR methodology or alternate methods when appropriate data was unavailable for TNRCC methods. A detailed explanation of the criteria and their method of selection is provided in the RFI Work Plan, submitted 30 JUL 93.

As discussed in the RFI Work Plan, groundwater MSCs (GW) were adjusted upward by a factor of 100 as allowed under RRR because groundwater analyzed from the site consistently averaged over 10,000 mg/l total dissolved solids (TDS). The adjusted groundwater criterion was then used to develop an adjusted GWP by multiplying again by 100, as applied in all cases because of the soil-to-groundwater cross-media factor, for a total multiplication factor of 10,000. These adjusted values are reflected in Table 3-1 of the CMI Work Plan, dated 01 APR 94.

3.4 Contaminated Media and Constituents of Concern

Based on the analytical results submitted in the RFI Work Plan and presented in the CMI Work Plan, SWMU Z soils meet RRR Standard 2 criteria. The soils have been remediated but only to satisfy UCC's internal divestiture standards for TPH.

UCC believes arsenic (7.9 mg/kg), lead (200 mg/kg), and mercury (22.8 mg/kg), though detected during the RFI as slightly exceeding Standard 2, are reflective of the background concentration (see Facility Background Investigation Report, 30 JUL 93) of the facility's geographical location and does not require any remedial action under TNRCC RRR. However, before divesting the property back to the Brownsville Navigation District, UCC chose to remediate SWMU Z soils for the non-Appendix IX contaminant, Total Petroleum Hydrocarbons, as part of UCC's divestiture program.

UCC conducted verification sampling targeting TPH within the residual soils. TPH analysis by GC/MS was used exclusively to verify compliance of the remediation with the divestiture criterion (i.e., TPH).

4.0 REMEDIATION PROCEDURES

4.1 Excavation of SWMU Z Waste Soil

The remediation of TPH and associated field activities were conducted in accordance with the approved Project Health and Safety Plan. The plan was followed, without incident, in compliance with OSHA 29 CFR Part 1910 regulations, and with UCC and ENSR health and safety requirements.

The excavation measured approximately 130 feet by 50 feet and was approximately 12 feet deep. Excavation was achieved using a tracked excavator. Groundwater was encountered during the excavation, and no soil was removed from below groundwater.

Prior to fully initiating excavation activities, several test pits were excavated and field screened to segregate the waste soils into separate stockpiles. The soils were segregated based on appearance and were grouped as follows:

1) Soils with no obvious signs of hydrocarbon contamination.
2) Soils with obvious signs of hydrocarbon contamination.

Information obtained from this test pit field screening was considered, along with results of the previous divestiture investigation soil analyses for this unit, to develop a scheme to divide the unit into segments of similar waste types. Preliminary field estimates were that 2,545 cubic yards of soils were excavated from SWMU Z. The excavated soils were staged on 6 mil plastic sheeting and covered with the same during inclement weather to prevent runoff from these soils. The soils were excavated and stockpiled as follows:

- **SP1:** Approximately 675 cubic yards of soil which appeared to be uncontaminated fill soil (minor contamination) was removed from the surface to a depth of approximately three feet and placed into three stockpiles, two of which were approximately 300 cubic yards each and one that was 75 cubic yards.

- **SP2:** Approximately 50 cubic yards of soil was determined to have medium contamination.

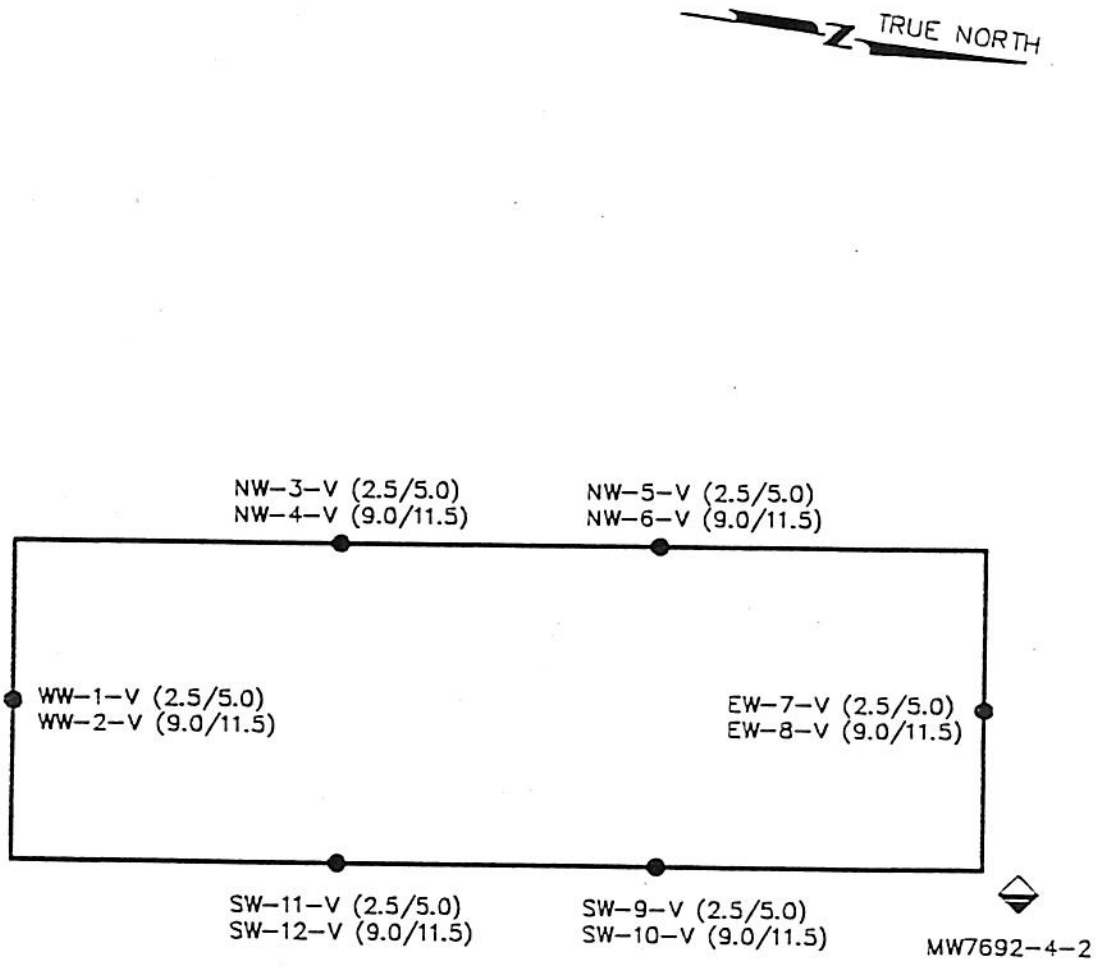
- **SP3:** Approximately 1,800 cubic yards of soil described as black, heavily contaminated soil it was segregated into six stockpiles, being approximately 500, 200, 275, 275, 275, and 275 cubic yards.

- Approximately 20 cubic yards of concrete blocks were stockpiled for disposal as wastes with minor contamination.

In general, the black stained, hydrocarbon contaminated soils were encountered approximately six feet below grade and were continuous to approximately eleven to twelve feet. Groundwater was encountered in test pits at approximately 12-13 feet, but excavations were terminated at approximately 12 feet in saturated, visually clean native clay soils at the soil/groundwater interface.

4.2 Soil Verification Samples

To determine that sufficient removal of soils had occurred to achieve divestiture criteria and thereby determine the limits of the excavation, discrete soil verification samples were collected from the sidewalls of the excavation utilizing the excavator bucket from the respective depths of approximately 2.5 to 5.0 feet and 9 to 11.5 feet. Verification samples were collected and analyzed in accordance with EPA protocol, SW-846, Test Methods for Evaluating Solid Waste, from the locations shown in Figure 4-1. Each soil sample was collected from the center of the excavator bucket using a clean trowel and placed in a clean glass jar and appropriately preserved and shipped to Pace Laboratories in Houston, Texas accompanied by the appropriate chain of custody documentation. As a demonstration of the low risk to human health and the environment posed by the soil contaminants remaining following the remediation of TPH, at TNRCC's request and to satisfy the requirements of the disposal facilities, UCC's soil verification sampling was not limited to TPH analyses by GC/MS, but in addition, included analyses of RCRA metals, selected volatiles and semi-volatile extractables, including polynuclear aromatics. The semivolatiles, volatiles, and metals selected for analysis were those which, based on the RFI results from this and other areas and this areas use for managing oily wastes, might be present in this SWMU.. The semivolatile analytes were acenaphthene, acenaphthylene, anthracene, benzo(a)pyrene, chrysene, fluoranthene, fluorene, naphthalene, phenanthrene, pyrene, and bis(2-ethylhexyl)phthalate. Volatiles selected for analysis were 4-methyl-2-pentanone, benzene, toluene, ethylbenzene, xylene(s), and acetone. Metals analyzed were arsenic, lead, beryllium, chromium, cobalt, copper, mercury, nickel, silver, and zinc. Table 4-1 presents a summary of these results. Table 4-1 presents only those analytes for which there was at least one detection. Some analytes were not detected in any samples (see Table 4-1 footnote).



LEGEND

◈ – MONITOR WELL LOCATION

● – SAMPLE LOCATION

SW–11–V (2.5/5.0) – SAMPLE ID NUMBER WITH APPROXIMATE DEPTH OF SAMPLE COLLECTION

NOTE: NO SAMPLES WERE COLLECTED FROM FLOOR OF EXCAVATION AS GROUNDWATER WAS ENCOUNTERED AT APPROXIMATELY 12 FT. RFI GROUNDWATER DATA INDICATES THAT GROUNDWATER MEETS STANDARD 2 CRITERIA AT SWMU Z.

30 0 30

APPROXIMATE SCALE IN FEET

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FIGURE 4–1
SWMU Z
VERIFICATION SAMPLE LOCATIONS
UNION CARBIDE CORPORATION
BROWNSVILLE, TEXAS

DRAWN: SJF	DATE: 10 JUN 94	PROJECT NUMBER:
APPV'D:	REVISED:	6900–080–391

69002...
3–28–94

TABLE 4-1

Summary of Results of SWMU Z Verification Sampling for Remaining Soils

Sample ID	TPH as Gasoline (GC/MS) (mg/kg)	TPH as Diesel (GC/MS) (mg/kg)	Metals (mg/kg)										Semi-Volatiles bis (2-ethyl-hexyl) phthalate (mg/kg)	Volatiles	
			As	Pb	Be	Cr	Co	Cu	Hg	Ni	Ag	Zn		Toluene (mg/kg)	Acetone (mg/kg)
WW-1-V	<0.5	<30	1.0	6.3	1.0	19	8	13	<0.1	16	<1	58	<0.330	<0.005	<0.010
WW-2-V	<0.5	<30	1.6	1.3	1.2	21	8	22	<0.1	17	<1	60	<0.330	<0.005	<0.010
NW-3-V	<0.5	<30	2.5	12	1.2	21	9	16	<0.1	18	<1	60	<0.330	<0.005	<0.010
NW-4-V	<0.5	<30	1.3	13	1.0	18	9	15	<0.1	15	<1	53	<0.330	<0.005	<0.010
NW-5-V	<0.5	<30	1.3	11	0.8	11	6	14	<0.1	14	<1	43	<0.330	<0.005	<0.010
NW-6-V	<0.5	<30	4.5	8.2	0.8	9	5	12	<0.1	10	<1	36	<0.330	<0.005	<0.010
EW-7-V	1.07	700	3.5	120	0.6	25	9	160	1.2	38	2	310	<0.330	0.008	<0.010
EW-8-V	0.99	2,100	1.4	9.9	0.9	14	12	17	<0.1	16	<1	51	1.4	<0.005	<0.010
SW-9-V	2.02	<30	0.4	2.8	1.1	20	8	50	0.2	21	4	75	<0.330	<0.005	<0.010
SW-10-V	2.17	<30	1.2	8.5	1.0	13	7	12	<0.1	14	<1	53	<0.330	<0.005	<0.010
SW-11-V	0.95	<30	2.1	17	0.9	17	7	17	<0.1	16	4	65	0.650	<0.005	<0.010
SW-12-V	<0.5	<52	5.2	64	1.3	21	9	14	<0.1	18	<1	67	<0.330	<0.005	0.026
Statistical TPH Calculation		501													

Note: Polynuclear Aromatic Compounds (acenaphthene, acenaphthylene, anthracene, benzo(a)pyrene, chrysene, fluoranthene, fluorene, naphthalene, phenanthrene, pyrene) were not detected within each sample using a method detection limit of 330 µg/kg.
Volatile extractables in soil, 4-methyl-2-pentanone, benzene, ethylbenzene, and xylene (total) were not detected within each sample above their respective method detection limits.
< = less than method detection limit

The results of the soil verification sampling, shown in Table 4-1, indicate sufficient remediation of the TPH contaminated soils to satisfy divestiture criteria. Table 4-1 also presents the TPH data statistically treated according to TNRCC methodology (30 TAC 335.553d.2). Using this method, the concentration of TPH as diesel is statistically estimated at 501 mg/kg, well below the divestiture criteria of 1000 mg/kg. Laboratory data packages are presented in Appendix B. Also provided in Appendix B are the groundwater analytical results from the RFI. This RFI groundwater data supplements the verification analyses taken in the side-walls of the excavation. During the RFI, samples from the groundwater indicated no contamination exceeding Standard 2 criteria. During verification sampling, following excavation of TPH for divestiture purposes, no samples were taken in the bottom of the excavation due to encountering groundwater. The RFI groundwater data provided in Appendix B is intended to verify that no significant concentration of contaminants remain below the SWMU and provide additional basis for closure of this SWMU under Standard 2. Two sets of groundwater data are presented for MW-7692-4-2. Sample MW 7692-4-2 and MW 7692-101-2 are duplicate samples from a single sampling event.

4.3 Backfill of Excavation

Following notification to Mr. R. E. O'Bryan (UCC) that of the results of verification sample analyses satisfied the divestiture objective, UCC authorized backfilling of SWMU Z. Backfilling was completed on 01 FEB 94. SWMU Z was backfilled with soil which had been analyzed by UCC, prior to backfilling, for the presence of hazardous constituents. The soil was determined to be suitable for its intended purpose. The results of the soil analyses are on file at UCC's Brownsville, Texas facility.

5.0 WASTE MANAGEMENT

Although the results of the RFI indicated that SWMU Z contained no hazardous waste, additional analyses was required to evaluate the non-hazardous waste disposal options which were appropriate for the SWMU Z soils. Representative samples were collected from stockpiled SWMU Z soils and analyzed for waste classification purposes. Composite soil samples were analyzed for metals, semi-volatiles, volatiles by the Toxicity Characteristic Leaching Procedure (TCLP), and total petroleum hydrocarbons (TPH) by IR. Grab samples of soil were analyzed for Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) per state requirements for disposal. Pesticides and herbicides were not analyzed. Based on the results of these analyses, UCC classified the relatively clean soils removed from the upper three feet of SWMU Z, SP1-SP2, as Class II (Nonhazardous) Industrial Solid Waste. The black stained soils, SP-3, were classified as Class I (Nonhazardous) Industrial Solid Waste. The results of these classification analyses are presented in Tables 5-1 and 5-2. Table 5-1 provides both the pertinent TNRCC RRR MCLs and the EPA TCLP limits. The laboratory data packages for these results are presented in Appendix C. TPH in soils was evaluated for waste disposal by EPA Method 418.1 (IR) as required by the TNRCC. Samples whose results are summarized in Table 5-1 and 5-2 were either grabs or composites as required by the TNRCC regulations or disposal facility requirements. Grabs were taken for BTEX samples in Table 5-2 to meet those requirements.

Waste manifests indicate that 1,122 cubic yards of soils from SP-1 and SP-2 were disposed of as Class II Nonhazardous Industrial Solid Waste and 22 cubic yards of contaminated soils were disposed of as Class I (Nonhazardous) Industrial Solid Waste at Browning-Ferris Industries in Sinton, Texas, because of exceeding Class II TPH standards but not Class I standards for the Sinton Landfill. According to waste manifest records 1,578 of the SWMU Z soils exceeded the BFI's landfill acceptance limit of 5,000 mg/kg of TPH (IR) and were disposed of as Class I (Nonhazardous) Industrial Solid Waste at Texas Ecologists in Robstown, Texas. Copies of the TNRCC manifests which document these waste shipments have been provided to the TNRCC in both Austin and the District 15 Office.

TABLE 5-1

Results of SWMU Z TCLP Waste Disposal Analyses for SP1-SP2 Soils (from 0-3 feet) and SP3 Soils (from >3 feet)

	SP1-SP2-W (mg/l)	SP3-A1-W (mg/l)	SP3-A2-W (mg/l)	SP3-B1-W (mg/l)	SP3-C1-W (mg/l)	SP3-D1-W (mg/l)	SP3-E1-W (mg/l)	SP3-F1-W (mg/l)	Maximum Concentration of Contamination for the Characteristic of Toxicity (mg/l)	30 TACS 335.501-515 Appendix 1, Table 1 MCLs (mg/l)
TCLP Metals:										
Arsenic	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	5.0	1.8
Barium	0.6	1.3	0.9	1.1	1.0	1.3	1.3	1.0	100	100
Cadmium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	1	0.5
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	5.0	5.0
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	5.0	1.5
Silver	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	5.0	5.0
Selenium	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1.0	1.0
Mercury	0.0010	<0.0002	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.2	0.2
TCLP Semivolatiles:										
1,4-Dichlorobenzene	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	7.5	7.5
2,4,5-Trichlorophenol	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	400.0	400.0
2,4,6-Trichlorophenol	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	2.0	2.0
2,4-Dinitrotoluene	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.13	0.13
Hexachlorobenzene	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.13	0.13
Hexachlorobutadiene	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.5	0.4
Hexachloroethane	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	3.0	3.0
Nitrobenzene	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	2.0	2.0

TABLE 5-1 (Cont'd)

Results of Waste Disposal Analyses for SP1-SP2 Soils (from 0-3 feet) and SP3 Soils (from >3 feet)

	SP1-SP2-W (mg/l)	SP3-A1-W (mg/l)	SP3-A2-W (mg/l)	SP3-B1-W (mg/l)	SP3-C1-W (mg/l)	SP3-D1-W (mg/l)	SP3-E1-W (mg/l)	SP3-F1-W (mg/l)	Maximum Concentration of Contamination for the Characteristic of Toxicity (mg/l)	30 TACS 335, 501-515 Appendix 1, Table 1 MCLs (mg/l)
Pentachlorophenol	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	100	100
Pyridine	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	5.0	4
m-Cresol	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	200	200
o-Cresol	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	200	200
p-Cresol	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	200	200
TCLP Volatiles										
1,1-Dichloroethylene	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.7	0.6
1,2-Dichloroethane	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.5	0.50
Benzene	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.5	0.50
Carbon Tetrachloride	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.5	0.50
Chlorobenzene	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	100	70
Chloroform	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	6.0	6.0
Methylethyl Ketone	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	200	200
Tetrachloroethylene	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.7	0.7
Trichloroethylene	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.5	0.5
Vinyl Chloride	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.2	0.2

< = less then method detection limit

TABLE 5-2

Results of SWMU Z Waste Characterization Analysis for TPH (IR) and BTEX Constituents

Sample ID	TPH (IR) (mg/kg)	Benzene (mg/kg)	Ethylbenzene (mg/kg)	Toluene (mg/kg)	m-Xylene (mg/kg)	o-Xylene (mg/kg)	p-Xylene (mg/kg)
SP1-A1	130	<0.010	<0.010	<0.010	<0.010	0.010	<0.010
SP1-B1	260	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
SP1-C1	370	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
SP2-A1	240	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
SP1-A2	210	-	-	-	-	-	-
SP1-A3	230	-	-	-	-	-	-
SP1-B2	190	-	-	-	-	-	-
SP1-B3	290	-	-	-	-	-	-
SP1-C2	390	-	-	-	-	-	-
SP2-A2	550	-	-	-	-	-	-
SP3-1F1	2,100	-	-	-	-	-	-
SP3-1	5,475	-	-	-	-	-	-
SP3-2	3,113	-	-	-	-	-	-
SP3-3	2,712	-	-	-	-	-	-
SP3-4	520	-	-	-	-	-	-
SP3-5	1,825	-	-	-	-	-	-

- Not tested.
< = less then method detection limit

TABLE 5-2 (Cont'd)

Results of SWMU Z Waste Characterization Analysis for TPH (IR) and BTEX Constituents

Sample ID	TPH (IR) (mg/kg)	Benzene (mg/kg)	Ethylbenzene (mg/kg)	Toluene (mg/kg)	m-Xylene (mg/kg)	o-Xylene (mg/kg)	p-Xylene (mg/kg)
SP3-6	7,175	-	-	-	-	-	-
SP3-7	218	-	-	-	-	-	-
SP3-8	405	-	-	-	-	-	-
SP3-9	670	-	-	-	-	-	-
SP3-10	3,133	-	-	-	-	-	-
SP3-11A	128	-	-	-	-	-	-
SP3-12	1,235	-	-	-	-	-	-
SP3-13	14,158	<0.5	0.89	<0.5	0.69	1.67	0.57
SP3-14	9,641	-	-	-	-	-	-
SP3-15	3,408	-	-	-	-	-	-
SP3-16	435	-	-	-	-	-	-
SP3-17	15,000	0.68	1.50	0.60	2.21	2.36	0.63
SP3-18	156	-	-	-	-	-	-
SP3-19A	208	-	-	-	-	-	-
SP3-20	12,361	0.93	1.15	0.68	0.91	1.89	0.78
SP3-21	1,075	-	-	-	-	-	-
SP3-22	7,033	-	-	-	-	-	-

- Not tested.
< = less then method detection limit

TABLE 5-2 (Cont'd)

Results of SWMU Z Waste Characterization Analysis for TPH (IR) and BTEX Constituents

Sample ID	TPH (IR) (mg/kg)	Benzene (mg/kg)	Ethylbenzene (mg/kg)	Toluene (mg/kg)	m-Xylene (mg/kg)	o-Xylene (mg/kg)	p-Xylene (mg/kg)
SP3-23	3,167	-	-	-	-	-	-
SP3-24	3,683	-	-	-	-	-	-
SP3-25A	5,417	-	-	-	-	-	-
SP3-26	4,800	-	-	-	-	-	-
SP3-27	24,833	<0.5	<0.5	<0.5	<0.5	0.77	0.97
SP3-28	33,417	0.50	<0.5	<0.5	<0.5	1.14	<0.5
SP3-29	18,417	1.78	8.20	1.24	7.54	12.12	3.49
SP3-30	4,350						
SP3-31	14,917	0.54	1.08	<0.5	1.34	1.02	0.42
SP3-32	594	-	-	-	-	-	-
SP3-33	1,970	-	-	-	-	-	-
SP3-34	1,645	-	-	-	-	-	-
SP3-35	585	-	-	-	-	-	-
SP3-36	1,990	-	-	-	-	-	-
SP3-11B	154	-	-	-	-	-	-
SP3-19B	78	-	-	-	-	-	-
SP3-25B	28,194	0.86	5.45	1.27	5.31	9.93	3.00

- Not tested.
< = less then method detection limit

6.0 DEED CERTIFICATION

In accordance with 30 TAC §335.560, UCC will provide the deed certification information to the Brownsville Navigation District to be placed in the deed records of Cameron County. Proof of filing of the deed certification shall be provided to the Executive Director in writing no later than 90 days after TNRCC acceptance of this report. An example of the deed certification is provided in Appendix D. The deed certification example includes a list (Table D-1) of the known waste constituents left in place and their concentrations (maximum and average) as well as the Notice of Registration and the site survey and metes and bounds description. The table also presents the Standard 2 Criteria for those constituents. The criteria were taken from the values in the Risk Reduction Rule (28 JUN 93) tables when available or were generated using Risk Reduction Rules methods and factors developed from various databases such as IRIS or HEAST or other appropriate sources. GWP values were adjusted for groundwater TDS greater than 10,000 mg/l. The details of the development of these criteria are presented in the RFI Work Plan submitted to the TNRCC on 30 JUL 93.

7.0 CONCLUSIONS

Following the remediation of SWMU Z, achievement of UCC's internal divestiture criterion for TPH has been demonstrated by soil verification results using TPH analyses (GC/MS) of the remaining soils.

On the basis of information in the RFI Work Plan, submitted to the TNRCC 30 JUL 93, UCC concludes that the soils in SWMU Z meet Risk Reduction Standard 2 adjusted criteria in accordance with 30 TAC 335, Subchapter S. Deed certification is required in accordance with 30 TAC §335.560 (b)(1-4) and will be filed by the facility owner, BND, within 90 days of the TNRCC's acceptance of this report.

This report describes the results of ENSR's remedial investigation to correct the environmental impacts or remediate the presence of a nonhazardous waste involving or affecting the divestiture of the subject property.

REFERENCES CITED

30 Texas Administrative Code, Texas Register, Chapter 335, Subchapter S, 28 JUN 93.

Corrective Measures Implementation Work Plan for SWMU Z, "Old Oil Skimmer Pits," Union Carbide Corporation, 01 APR 94.

RCRA Facility Investigation Work Plan, Union Carbide Chemicals and Plastics Company, Brownsville, Texas Volumes I - IV, 30 JUL 93.

APPENDIX A

AGENCY CORRESPONDENCE

UNION CARBIDE CORPORATION (UCC)
Gulf Coast Remediation Group (GCRG)
3301-5 Avenue South (P O Box 471)
Building 249T Room 12
Texas City, Texas 77592-0471

(409) 948-5226
(409) 942-2927 Fax

UNION CARBIDE

MEMORANDUM

19 October 1993

Anthony C Grigsby
Executive Director
Texas Natural Resource Conservation Commission (TNRCC)
1700 North Congress
Stephen F Austin Building
P O Box 13087, Capitol Station
Austin, Texas 78711-3087

CERTIFIED RETURN RECEIPT REQUESTED MAIL
No. P-319-085-973

SUBJECT: SWMU Z; REMEDIATION NOTIFICATION AND INITIATION

UCC SOLVENTS AND COATINGS MATERIALS DIVISION
BROWNSVILLE, TX FACILITY
STAR ROUTE BOX 90 (2.5 miles east of Highway 511 on Highway 48)
BROWNSVILLE, TX 78521

TWC PERMIT No. HW-50318
TWC SOLID WASTE REGISTRATION No. 31108
EPA ID No. TXD008114092

Dear Mr. Grigsby:

This letter serves as notification to the TNRCC of upcoming remedial activities at the referenced site in accordance with 31 TAC 335.8.c.1. UCC will initiate remediation of the Solid Waste Management Unit (SWMU) Z "Old Oil Skimmer Pits" commencing on or after 01 NOV 93. The affected soils will be remediated to a minimum compliance with Standard 2 of the Texas Risk Reduction Rules [31 TAC 335.551 - 335.569]. Remedial activities are expected to be completed by 17 DEC 93.

A (one-time) Request For Texas Waste Code form is attached and being copied to the TNRCC's Data Control Team for the requested waste code assignments.

We understand, in accordance with 31 TAC 335.8.c.2, remedial activities to attain Risk Reduction Standard 2 may commence within 10 days of your receipt of this letter and without prior TNRCC approval. Following completion of the remediation, UCC will submit a report to your office in accordance with 31 TAC 335.554.

If you should require any additional information, please feel free to contact me at (409) 948-5226.

Sincerely,

Robert E. O'Bryan
Brownsville, TX Site Remediation Coordinator

reo25:bv280

cc:
G M Alsop - 511
W S Callaway, Jr - 526
H C Clark - ENSR
R Clarke - TNRCC (Austin)
C S Colman - 500
H W B Estes - ENSR
T Franco - TNRCC15 (Harlingen)
W S Garnett - 526
D W Glasco - ENSR
S L Glasper - 515
C J Kruse - BND
L S Magelssen - 500
J Nesmith III - 500
D K Ramsden - ENSR
S Rayos - TNRCC (Austin)
S I Shah - 511
M E Tapp - 803
TNRCC - Data Control Team (Austin)
H C Ward - 500
Location 526 File

reo25:bv280

TEXAS WATER COMMISSION

REQUEST FOR TEXAS WASTE CODE AND AUTHORIZATION FOR SHIPMENT OF CLASS I, II, III AND EPA HAZARDOUS WASTE

Pursuant to the generator notification requirements of 31 TAC Section 335.6, the generator of a solid waste is required to submit to the TWC detailed written information pertaining to the composition and characteristics of the waste.

Please type or print legibly:

Mr. R.E. O'Bryan
Union Carbide Corporation
Star Route Box 90
Brownsville, TX 78521

GENERATOR CONTACT PERSON
GENERATOR COMPANY NAME
GENERATOR MAILING ADDRESS
CITY, STATE, ZIP CODE
PHONE NO. (210) 831 - 4501

TWC Registration No. 31108 **U. S. EPA Identification No.** TXD008114092
(Leave blank if not registered)

Generating Site Location _____

☑ Same As Above

Designated Treatment, Storage, and/or Disposal Facility Name and Address To be determined

DESCRIPTION OF WASTE
(do not use DOT description or trade name)

1. Soils contaminated with metals and organics, Hazardous Wastes
2. Soils contaminated with metals and organics, Non Hazardous Wastes
3. Soils contaminated with metals and organics, Non Hazardous Wastes
4. _____

* N/A - Not Applicable

TWC USE ONLY

For TWC Assignment of Texas Waste Code Number

TEXAS WASTE CODES

FORM CODE	CLASS CODE	EPA CODE	ORIGIN CODE
301	H	D007 D008 D009	3
301	1	N/A*	3
301	2	N/A*	3

PROCESSED DATE:

APPROVED BY:

TWC DISTRICT: OFFICE

GENERATOR/REPRESENTATIVE

I certify that the above information is correct to the best of my knowledge.

I, Burch Estes (NAME, Please Print), am employed by ENSR Consulting and Engineering (COMPANY NAME)

3000 Richmond Ave, Houston, TX 77098 (MAILING ADDRESS)

and am authorized to sign this certification for: Union Carbide Corporation (COMPANY NAME)

(SIGNATURE) 10/11/93 (DATE) (713) 520-9900 (PHONE NUMBER)

Mail to: Texas Water Commission
Data Control Team
P.O. Box 13087
Austin, Texas 78711-3087
Phone: (512) 463-8175
FAX: (512) 908-6410

TWC-0757 (Rev. 01-01-93)

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

January 12, 1994

Mr. Robert E. O'Bryan
Site Remediation Coordinator
Union Carbide Corporation
Gulf Coast Remediation Group
P.O. Box 471
Texas City, Texas 77592-0471

RECEIVED
JAN 18 1994
REO'B

Re: Union Carbide/Brownsville
TNRCC Solid Waste Registration No. 31108
SWMU Z "Old Skimmer Pits"
Standard 2 Remediation
Closure Notification Received

Dear Mr. O'Bryan:

The Texas Natural Resource Conservation Commission (TNRCC) has received your closure notification dated October 19, 1993 for the above-referenced unit. A copy of your submittal should be forwarded to the TNRCC Region 15 Office. Future correspondence concerning this closure should be provided in triplicate, with the original and one copy going to this office and a copy to the TNRCC Region 15 Office at the following mailing address:

813 East Pike Blvd.
Weslaco, Texas 78596-1315

You may proceed with your closure actions, unless you are otherwise contacted by the TNRCC. The following information is pertinent to the decisions which you will be required to make:

1. The TNRCC Regional Office must be notified in writing at least 7 working days prior to any sampling event and prior to completion of closure activities. TNRCC personnel may exercise the right to observe closure activities and take samples for verification.

2. To achieve "clean closure", analyses of soil and groundwater samples must indicate complete removal of waste and waste constituents (to non-detectable levels). Waste constituents which may occur naturally such as metals or salts must be compared to natural background values at the site.

3. Any residual contamination allowed to remain in place shall be deed recorded pursuant to 30 Texas Administrative Code (TAC) §335.560. Post-closure care may also be required by the TNRCC in such situations.

4. Pursuant to 30 TAC §335.8(d), a **Closure Completion Report** detailing analytical results, work done, waste disposition and final configuration of the referenced unit shall be submitted to the TNRCC within 30 days of completion of the closure. The Closure Completion Report shall contain a **certification** by the owner or operator of the site that the closure was conducted in accordance with the submitted plan. Such certification shall also be required of any professional engineer registered in the State of Texas retained by the owner or operator of the site to oversee the work outlined by the submitted plan.

   The TNRCC Data Control Team of the Waste Evaluation Section should be advised in writing of any changes to your Notice of Registration that have resulted from the closure.

Please be aware that it is the continuing obligation of persons associated with a site to assure that industrial solid waste and municipal hazardous waste is managed in such a way that it does not cause the discharge or imminent threat of discharge of such waste into or adjacent to waters in the state, a nuisance, or the endangerment of the public health and welfare as required by 30 TAC §335.4. If the closure activities do create a discharge or threat of discharge of waste, a nuisance or endangerment to human health and welfare, the burden remains upon Union Carbide/Brownsville to take necessary and authorized actions to correct such conditions.

If you have any questions on this matter, please contact the Closure Team at 512/239-2343.

Sincerely,

Richard Clarke

Richard Clarke, Team Leader
Closure Team, Corrective Action Section
Industrial and Hazardous Waste Division

RDC/djc

cc: TNRCC Region 15, Weslaco

APPENDIX D

CERTIFICATION OF REMEDIATION

STATE OF TEXAS
CAMERON COUNTY

INDUSTRIAL SOLID WASTE
CERTIFICATION OF REMEDIATION

KNOW ALL MEN BY THESE PRESENTS THAT: Pursuant to the Rules of the Texas Natural Resource Conservation Commission pertaining to Industrial Solid Waste Management, this document is hereby filed in the Deed Records of Cameron County, Texas in compliance with the recordation requirements of said rules:

I.

Union Carbide Corporation has performed a remediation of the land described herein. A copy of the Notice of Registration No. 31108, including a description of the facility, is attached hereto and is made part of this filing. A list of the known waste constituents, including known concentrations (i.e., soil and groundwater, if applicable), which have been left in place is attached hereto and is made part of this filing (see Table D-1). Further information concerning this matter may be found by an examination of company records or in the Notice of Registration No. 31108 files, which are available for inspection upon request at the central office of the Texas Natural Resource Conservation Commission in Austin.

The Texas Natural Resource Conservation Commission derives its authority to review the remediation of this tract of land from the Texas Solid Waste Disposal Act, §361.002, Texas Health and Safety Code, Chapter 361, which enables the Texas Natural Resource Conservation Commission to promulgate closure and remediation standards to safeguard the health, welfare and physical property of the people of the State and to protect the environment by controlling the management of solid waste. In addition, pursuant to the Texas Water Code, §5.012 and §5.013, Texas Water Code, Annotated, Chapter 5, the Texas Natural Resource Conservation Commission is given primary responsibility for implementing the laws of the State of Texas relating to water and shall adopt any rules necessary to carry out its powers and duties under the Texas Water Code. In accordance with this authority, the Texas Natural Resource Conservation Commission requires certain persons to provide certification and/or recordation in the real property records to notify the public of the conditions of the land and/or the occurrence of remediation. This deed certification is not a representation or warranty of the Texas Natural Resource Conservation Commission of the suitability of this land for any purpose, nor does it constitute any guarantee by the Texas Natural Resource Conservation Commission that the remediation standards specified in this certification have been met by Union Carbide Corporation.

II.

Being .143 acre tract of land, more or less, located in the Union Carbide Tract, Share 7, San Martin Grant, Port of Brownsville, Cameron County, Texas, more particularly described as follows:

(See attached metes and bounds description)

For Standard 2 cleanups: (Contaminants/contaminants and waste) deposited hereon meet non-residential (i.e., industrial/commercial) soil criteria)), in accordance with the Texas Natural Resource Conservation Commission's requirements in 30 Texas Administrative Code, §335.555), which mandates that substantial present and future risk be eliminated such that no post-closure care or engineering or institutional control measures are required to protect human health and the environment. Future land use is considered suitable for non-residential (i.e., industrial/commercial) purposes in accordance with risk reduction standards applicable at the time of this filing. Future land use is intended to be non-residential.

The current or future owner must undertake actions as necessary to protect human health or the environment in accordance with the rules of the Texas Natural Resource Conservation Commission.

III.

The owner of the site is the Brownsville Navigation District, a Texas Port Authority, and its physical address is south of intersection of State Highway 48 and State Highway 511, Brownsville, Texas 78523-3070 (mailing address: P.O. Box 3070, Brownsville, Texas 78523-3070) and its phone number is (210) 831-4592, where more specific information may be obtained from the General Manager and Port Director.

EXECUTED this the _____ day of _____, 19_____.

Brownsville Navigation District

a Texas Port Authority

_____

C. James Cruse
General Manager and Port Director

STATE OF TEXAS
CAMERON COUNTY

BEFORE ME, on this the _____ day of _____ personally appeared C. James Cruse, General Manager and Port Director of Brownsville Navigation District, a Texas Port Authority, known to me to be the person and agent of said corporation whose name is subscribed to the foregoing instrument, and he acknowledged to me that he executed the same for the purposes and in the capacity therein expressed.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this the _____ day of _____, 19____.

_____

Notary Public in and
for the State of Texas,
County of

_____

My Commission Expires

_____

TABLE D-1

CONTAMINATION LEFT IN-PLACE FOR SWMU Z STANDARD 2 CLOSURE[1]

ANALYTE	STANDARD 2 CRITERIA[2] (mg/kg)	MAXIMUM CONCENTRATION (mg/kg)	AVERAGE CONCENTRATION (mg/kg)
Acetone	4160[SAI]	0.100	0.015
Toluene	3630[SAI]	0.008	0.003
bis(2-Ethylhexyl)phthalate	204[GWP]	0.650	0.205
Arsenic[3]	3.27[SAI]	5.2	2.17
Lead	150[GWP]	120	23.8
Beryllium	1.33[SAI]	1.3	0.98
Chromium	1000[GWP]	25	17
Cobalt	13000[GWP]	12	8.1
Copper	13000[GWP]	160	30
Mercury	20[GWP]	1.2	0.16
Nickel	1000[GWP]	38	18
Silver	5100[GWP]	2	0.62
Zinc	109500[GWP]	310	78

[1] This is a list of known waste constituents of soils, including known concentrations, which have been left in place in Solid Waste Management Unit Z. A complete list of analytes is provided in Table 3-1 in the RCRA Facility Investigation Workplan (30 JUL 1993).
[2] Criteria were taken from values in Risk Reduction Rules Appendix II or were generated using Risk Reduction Rules methods. Footnotes refer to lower of either the GWP-Ind(GWP) or SAI-Ind(SAI) criteria.
[3] Arsenic detected above the Standard 2 Criteria is considered to be reflective of background concentrations for this industrial zone.

NOTICE OF REGISTRATION

0W0550

TEXAS WATER COMMISSION
NOTICE OF REGISTRATION
SOLID WASTE MANAGEMENT

09-03-92

THIS IS NOT A PERMIT AND DOES NOT CONSTITUTE AUTHORIZATION OF ANY WASTE MANAGEMENT ACTIVITIES OR FACILITIES LISTED BELOW. REQUIREMENTS FOR SOLID WASTE MANAGEMENT ARE PROVIDED BY TEXAS ADMINISTRATIVE CODE SECTION 335 OF THE RULES OF THE TEXAS WATER COMMISSION (TWC). CHANGES OR ADDITIONS TO WASTE MANAGEMENT METHODS REFERRED TO IN THIS NOTICE REQUIRE WRITTEN NOTIFICATION TO THE TWC.

DATE OF NOTICE: 07-08-92 REGISTRATION DATE: 08-10-77

REGISTRATION NUMBER: 31108 EPA I.D. NUMBER: TXD008114092

THE REGISTRATION NUMBER PROVIDES ACCESS TO STORED INFORMATION PERTAINING TO YOUR OPERATION. PLEASE REFER TO THAT NUMBER IN ANY CORRESPONDENCE.

COMPANY NAME: UNION CARBIDE CORP.
MAILING ADDRESS: STAR ROUTE, BOX 90
BROWNSVILLE TX 78521
GENERATING SITE LOCATION:
ST HWY 48 NORTHEAST OF BROWNSVILLE TXD008114092
CONTACT PERSON: BELIA CORTEZ
PHONE: (512) 831-4501
NUMBER OF EMPLOYEES: LESS THAN 100
TWC DISTRICT: 11

REGISTRATION STATUS: INACTIVE
REGISTRATION TYPE: GENERATOR
HAZARDOUS WASTE STATUS:
GENERATOR/TSD FACILITY

1. WASTE GENERATED:

WASTE NUMBER	DESCRIPTION	CLASS	CODE	DISPOSITION
001	BALL MILL RESIDUES (20% PO4 AND 80% H2O)	IH	949390	ON-SITE
	EPA HAZARDOUS WASTE NOS. (REFER TO 40 CFR PART 261 FOR DESCRIPTIONS): D001, D002, D007			
002	ACID, ORGANIC (ACETIC, FORMIC, PROPIONIC & BUTYRIC)	IH	911840	ON-SITE/SECONDARY USE
	EPA HAZARDOUS WASTE NOS. (REFER TO 40 CFR PART 261 FOR DESCRIPTIONS): D001, D002, U123, D007			
003	CARBON DEPOSITS FROM FIREBOX	II	271590	ON-SITE

NUMBER: 31108
COMPANY NAME: UNION CARBIDE CORP.

AND STACK

004	SCALE, EVAPORATOR	I	171600	ON-SITE
005	PAPER TRASH	II	280240	OFF-SITE
006	ASBESTOS INSULATON	I	179390	OFF-SITE
007	SODIUM HYDROXIDE SOLUTION	IH	900120	ON-SITE/OFF-SITE
	EPA HAZARDOUS WASTE NOS. (REFER TO 40 CFR PART 261 FOR DESCRIPTIONS): D002, D007			
008	WASTE TREATMENT RESIDUE BIOECOLOGY TREATMENT PROCESS	IH	949550	ON-SITE/OFF-SITE
	EPA HAZARDOUS WASTE NOS. (REFER TO 40 CFR PART 261 FOR DESCRIPTIONS): D007			
009	SILICA GEL	II	270850	ON-SITE/OFF-SITE
010	OIL, WASTE	II	210450	OFF-SITE
011	SOIL, CONTAMINATED	II	270490	OFF-SITE
012	SLUDGE, NEUTRALIZATION POND	I	149150	ON-SITE/OFF-SITE
013	WASTEWATER CONTAINING HEAVY METALS	I	105370	ON-SITE/OFF-SITE
014	WASTEWATER, INDUSTRIAL PROCESS , HYDROCARBON CONTAINING	I	109520	ON-SITE
015	SOIL, ORGANIC CHEMICALS CONTAMINATED	I	179850	ON-SITE/OFF-SITE

II. SHIPPING/REPORTING: NOT APPLICABLE

III. ON-SITE WASTE MANAGEMENT FACILITIES:

FAC NO.	FACILITY	STATUS
01	SURFACE IMPOUNDMENT DISPOSAL OF WASTE NUMBER(S) 001, 003, 004, 007, 008, 011	INACTIVE
02	INCINERATOR PROCESSING OF WASTE NUMBER(S) 002	INACTIVE
03	TANK (SURFACE) STORAGE	INACTIVE

REGISTRATION NUMBER: 31108
COMPANY NAME: UNION CARBIDE CORP.

OF WASTE NUMBER(S) 002
TANK 3326

04 TANK (SURFACE) — INACTIVE
STORAGE
OF WASTE NUMBER(S) 002
TANK 5211

05 SURFACE IMPOUNDMENT — ACTIVE
DISPOSAL
OF WASTE NUMBER(S) 012, 013

06 SURFACE IMPOUNDMENT — INACTIVE
STORAGE/PROCESSING

07 SURFACE IMPOUNDMENT — INACTIVE
STORAGE/PROCESSING

08 SURFACE IMPOUNDMENT — ACTIVE
STORAGE/PROCESSING

09 SURFACE IMPOUNDMENT — ACTIVE
STORAGE/PROCESSING

UNLESS OTHERWISE STATED ABOVE, FACILITIES ARE LOCATED
AT ST HWY 48 NORTHEAST OF BROWNSVILLE TXD008114092
COUNTY OF CAMERON

IV. RECORDS.

A. FOR PURPOSES OF FILING ANNUAL REPORTS PURSUANT TO TEXAS ADMINISTRATIVE CODE SECTION 335 OF THE RULES OF THE TWC PERTAINING TO INDUSTRIAL SOLID WASTE MANAGEMENT, RECORDS SHOULD BE MAINTAINED FOR STORAGE, PROCESSING AND/OR DISPOSAL OF THE FOLLOWING WASTE(S) LISTED IN PART I:

001 949390 BALL MILL RESIDUES (20% PO4 AND 80% H2O)

002 911840 ACID, ORGANIC (ACETIC, FORMIC, PROPIONIC & BUTYRIC)

004 171600 SCALE, EVAPORATOR

007 900120 SODIUM HYDROXIDE SOLUTION

008 949550 WASTE TREATMENT RESIDUE BIOECOLOGY TREATMENT PROCESS

012 149150 SLUDGE, NEUTRALIZATION POND

013 105370 WASTEWATER CONTAINING HEAVY METALS

REGISTRATION NUMBER: 31108
COMPANY NAME: UNION CARBIDE CORP.

014 109520 WASTEWATER, INDUSTRIAL PROCESS
, HYDROCARBON CONTAINING

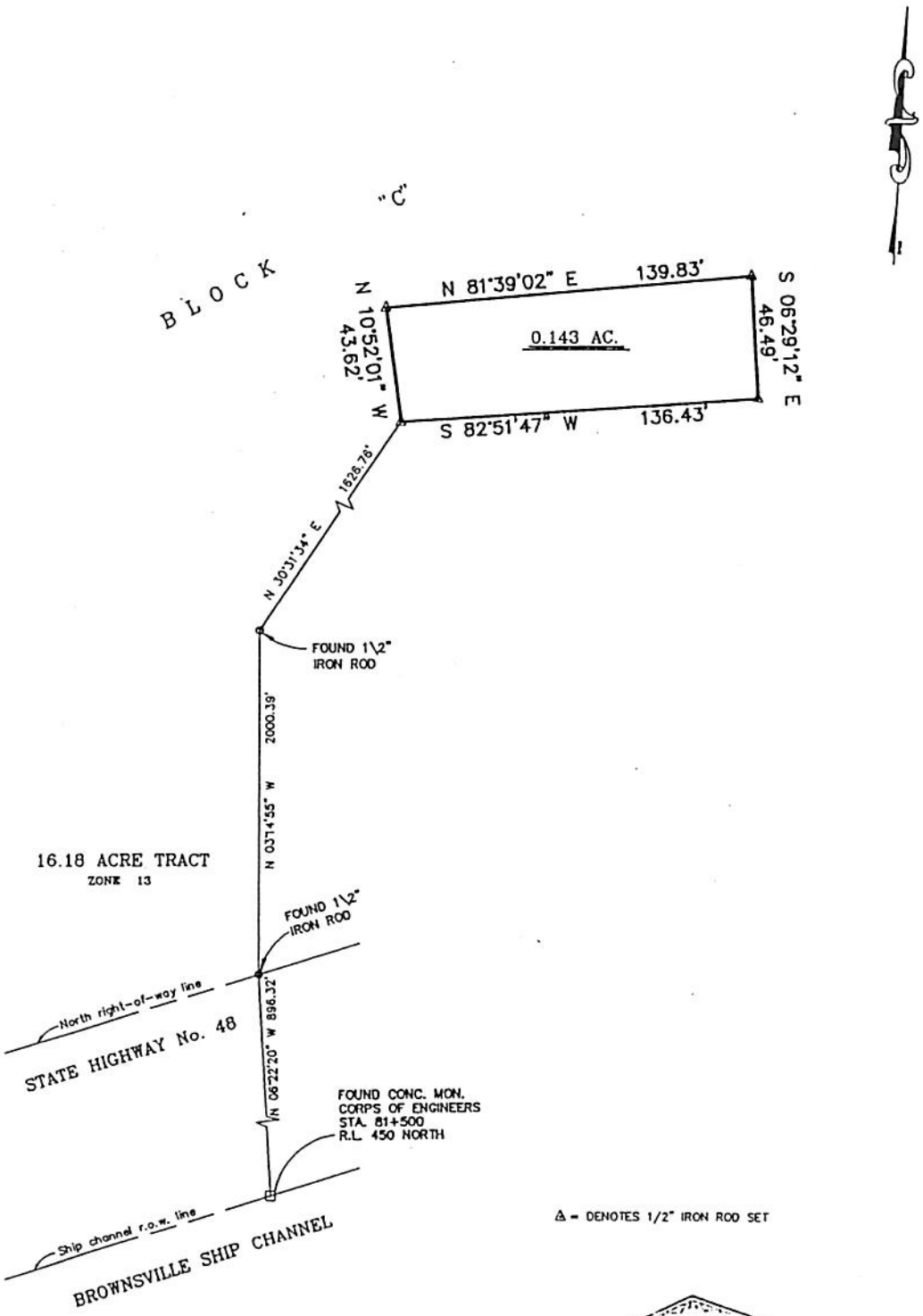
015 179850 SOIL, ORGANIC CHEMICALS CONTAM
INATED

8. PROOF OF RECORDATION IN THE COUNTY DEED RECORDS, AS REQUIRED BY TEXAS ADMINISTRATIVE CODE SECTION 335 OF THE RULES OF THE TDWR, SHOULD BE SUBMITTED TO THE EXECUTIVE DIRECTOR FOR THE FOLLOWING FACILITIES LISTED IN PART III IN ACCORDANCE WITH THE FOLLOWING SCHEDULES:

NEW FACILITIES - PRIOR TO INITIATION OF DISPOSAL OPERATIONS.

EXISTING FACILITIES - AS SOON AS POSSIBLE, BUT NO LATER THAN SIXTY (60) DAYS FROM THE DATE OF THIS NOTICE, UNLESS PREVIOUSLY SUBMITTED.

FAC NO	FACILITY
01	SURFACE IMPOUNDMENT



"The undersigned hereby certifies that this survey, as described hereon, was made on the ground on 2/01/94, that the only improvements on the ground are as shown; that there are no visible encroachments, visible overlappings, apparent conflicts, or visible easements, except as shown hereon."

Edmundo R. Gonzalez

STATE OF TEXAS
REGISTERED
E. R. GONZALEZ, JR.
3732
PROFESSIONAL
SURVEYOR

G-E&S
GONZALEZ
Engineering & Surveying, Inc.
Engineering ● Surveying Services
153 E. Price Road
Brownsville, Texas 78521
TEL. 210/546-5515
FAX 210/546-2804

SITE LAYOUT OF A 0.143 ACRE TRACT IN THE UNION CARBIDE TRACT, SHARE 7 SAN MARTIN GRANT, PORT OF BROWNSVILLE, CAMERON COUNTY, TEXAS.

SURVEYED FOR: ENSR CONSULTING AND ENGINEERING

Scale: 1"=50'	Date: 2/1/94	Des. By: J.A.	Dwn. By: J.A.	Ck. By: G.A.	Appd. By: E.R.G.	Proj. No: 1387-G-001-000

G·E&S
GONZALEZ
Engineering & Surveying, Inc.
P. O. Box 3104 • Brownsville, Texas 78520
Engineering ■ Surveying Services

February 3, 1994
1387-G-001-000

METES AND BOUNDS DESCRIPTION
0.143 ACRE TRACT

BEING 0.143 Acre Tract of land, located in the Union Carbide Tract, Share 7, San Martin Grant, Cameron County, Texas, said Tract being more particularly described by Metes and Bounds as follows;

COMMENCING at a concrete monument found at Corps of Engineers Sta: 81 + 500, reference line 4 + 50 North, North 6°-22'20" West, a distance of 896.32 feet to a ½" iron rod found at the North Right-of-way line of State highway No. 48, North 03°-14'-55" West, a distance of 2000.39 feet to a ½" iron rod found, North 30°-31'-34" East a distance of 1626.78 feet to a ½" iron rod set for the Southwest corner of this 0.143 Acre Tract and POINT OF BEGINNING;

THENCE North 10°-52'-01" West, a distance of 43.62 feet to a ½" iron rod set for the Northwest corner of this tract;

THENCE North 81°-39'-02" East, a distance of 139.83 feet to a ½" iron rod set for the Northeast corner of this tract;

THENCE South 06°-29'-12" East , a distance of 46.49 feet to a ½" iron rod set for the Southeast corner of this tract;

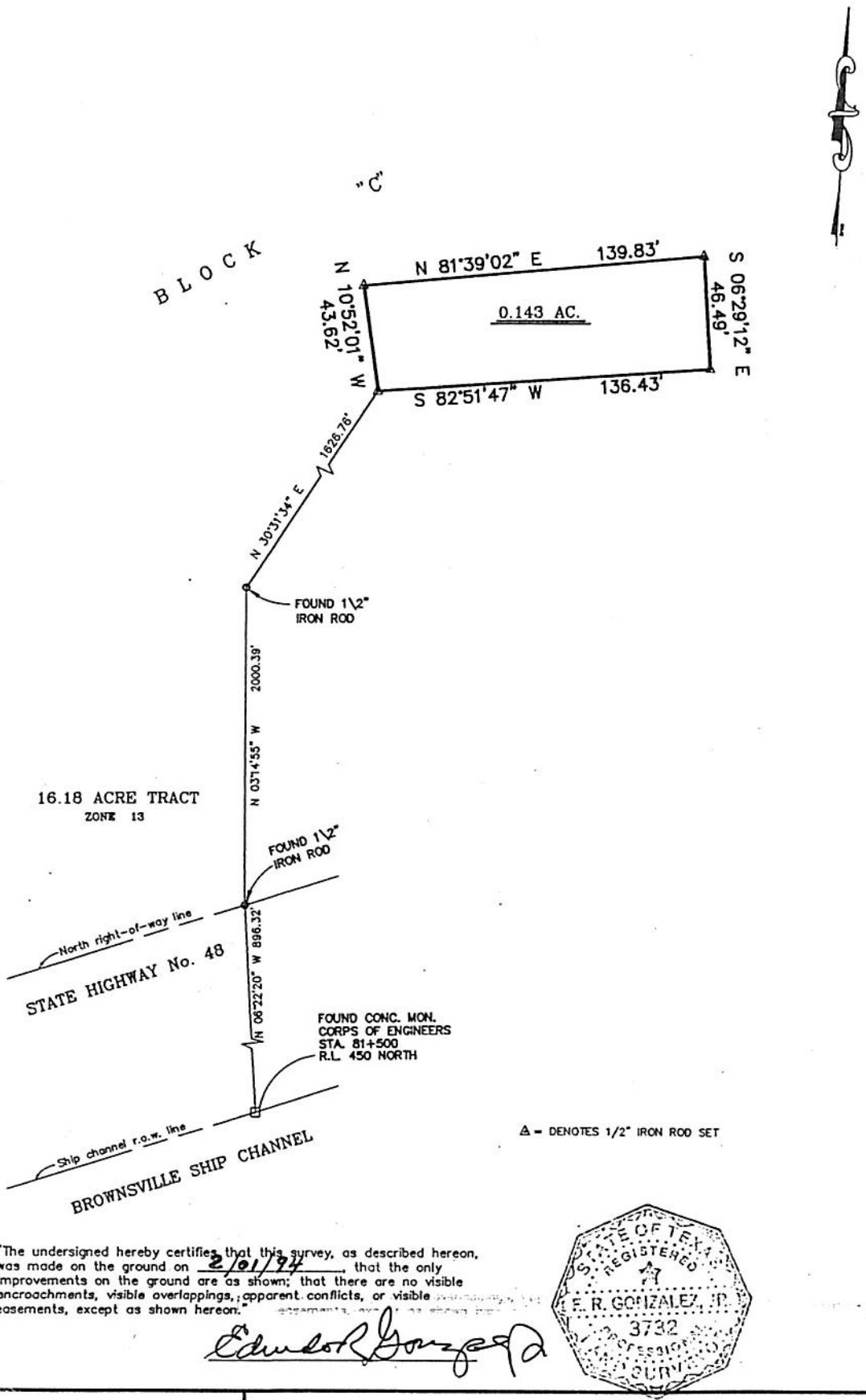
THENCE South 82°-51'-47" West, a distance of 136.43 feet to the POINT OF BEGINNING;

CONTAINING, 0.143 Acre more or less

Edmundo R. Gonzalez, Jr.
Registered Professional Land Surveyor # 3732

STATE OF TEXAS
REGISTERED
E. R. GONZALEZ, JR.
3732
PROFESSIONAL
LAND SURVEYOR

Office: 153 East Price Road • Brownsville, Texas 78521 • (210) 546-5515 • Fax (210) 546-2804
Mailing Address: P.O. Box 3104 • Brownsville, Texas 78523-3104



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SURVEYED FOR: ENSR CONSULTING AND ENGINEERING

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Union Carbide Corporation

Brownsville, Texas

ENSR

Revised Risk Reduction Rules - Standard 2 Corrective Measures Implementation Report for Solid Waste Management Unit Z "Old Oil Skimmer Pits" Union Carbide Corporation Brownsville, Texas Facility

ENSR Consulting and Engineering

October 1994

Document Number 6900-080-391